

QUIZ-COMPENDS

GYNÆCOLOGY

WELLS

47210930R



NLM 05242314 4

NATIONAL LIBRARY OF MEDICINE

236 Illustrations, many of which
ed in Colors.

Edition, by Hamilton. A Complete
TEXT-BOOK. By C. W. MANSELL MOULLIN, M.A., M.D. OXON.,
F.R.C.S., Surgeon and Lecturer on Physiology to the London Hospital;
formerly Radcliffe Traveling Fellow and Fellow of Pembroke College,
Oxford. Third American Edition. Revised and edited by JOHN B.
HAMILTON, M.D., LL.D., Professor of the Principles of Surgery and
Clinical Surgery, Rush Medical College; Professor of Surgery, Chicago
Polyclinic; Surgeon, formerly Supervising Surgeon-General, U. S. Marine
Hospital Service; Surgeon to Presbyterian Hospital; Consulting Surgeon
to St. Joseph's Hospital and Central Free Dispensary, Chicago, etc. With
Colored Frontispiece. 600 Illustrations, over 200 of which are original,
and many of which are printed in Colors. Royal Octavo. 1250 pages.

Handsomely bound in Cloth, *Net*, \$6.00; Leather, *Net*, \$7.00

Half Russia Crushed, Marbled edges and linings, *Net*, \$8.00

"The aim to make this valuable treatise practical by giving special attention to questions
of treatment has been admirably carried out. Many a reader will consult the work with a
feeling of satisfaction that his wants have been understood, and that they have been intelli-
gently met. He will not look in vain for details, without proper attention to which he
well known. *Journal of Medical Sciences*

MOR
ar
A
on

"Whi
omy, it
which is
and seve
tion of n
the form
the case
tion and
the work
work as
perly em

SURGEON GENERAL'S OFFICE

LIBRARY.

ANNEX

Section,

No. 155088.

214 of which
pographical
and Lecturer
6 pages.

Russia, \$8.00

descriptive anat-
of this subject,
thod is adopted,
origin and inser-
outlines, red for
discriminate in
ereby the direc-
n other parts of
valuable. The
subjects are pro-

LANDOIS' HUMAN PHYSIOLOGY. Fourth Edition. 845 Illus-
trations, many of which are in Colors. A Text-Book of Human
Physiology, including Histology and Microscopical Anatomy, with
special reference to the requirements of Practical Medicine. By
Dr. L. LANDOIS, Professor of Physiology and Director of the Physiological
Institute, University of Greifswald. Translated from the Seventh German
Edition, with additions by WILLIAM STERLING, M. D., sc. D., Brackenburg
Professor of Physiology and History in Owen's College and Victoria
University, Manchester; Examiner in the Honors' School of Science, Uni-
versity of Oxford, England. Fourth Edition, Revised and Enlarged.
Royal Octavo. 2 Volumes. Cloth, \$7.00

"Landois' Physiology is, without question, the best text-book on the subject that has
ever been written."—*New York Medical Record*.

Complete Circulars and Sample Pages of these Books sent upon application.

THESE PRICES

Valuable Handbooks.

ROBINSON. THE LATIN GRAMMAR OF PHARMACY AND MEDICINE. By H. D. ROBINSON, PH.D., Professor of Latin Language and Literature, University of Kansas, Lawrence. With an Introduction by L. E. SAYRE, PH.G., Professor of Pharmacy, and Dean of the Dept. of Pharmacy in the University of Kansas, and including two extensive vocabularies, English-Latin and Latin-English. Second Edition, Revised and Corrected with the assistance of DR. CHARLES RICE, President of the Committee of Publication of the U. S. P. 1890; Pharmacist Bellevue Hospital, New York. 12mo. 277 pages. Cloth, \$1.75

"The object of this useful book is a very laudable one, namely, to improve, if possible, the Latin used by both physicians and druggists, chiefly in the prescribing of drugs. While it is true that many of the profession find it unnecessary to remember the genitive endings of words used in medicine, because of the customary abbreviations in prescribing-writing, there are others who frequently desire to write their directions to the druggist in Latin, in order that the patient may not learn of facts about which it is often necessary for him to remain in ignorance. We hope that the book will prove a success, and by its general employment in both pharmaceutical and medical schools improve the knowledge of Latin in both professions."—*The Medical News, Philadelphia.*

BARTLEY. MEDICAL CHEMISTRY. Fourth Edition. A Text-Book for Medical, Dental, and Pharmaceutical Students. By E. H. BARTLEY, M.D., Professor of Chemistry and Toxicology at the Long Island College Hospital; late Chief Chemist, Board of Health of Brooklyn, N. Y., etc. Revised and Enlarged. With 92 Illustrations. Glossary and Complete Index. 711 pages. 12mo. Cloth, \$2.75; Sheep, \$3.25

"Of this work it may be said that it is condensed without being abrupt, it is detailed without verbosity, and all the instructions are given clearly and distinctly. The oldest and most accomplished physician will be well repaid in having it for a book of reference, while the student will find that it will lighten the burden which, of necessity, he is compelled to carry. It is completed by an excellent set of tables and an index."—*Louisville Medical News.*

DAVIS. A MANUAL OF PRACTICAL OBSTETRICS. Second Edition. Illustrated, including Several Plates. By EDWARD P. DAVIS, A.M., M.D., Clinical Lecturer on Obstetrics in the Jefferson Medical College; Professor of Obstetrics and Diseases of Children in the Philadelphia Polyclinic; Visiting Obstetrician to the Philadelphia Hospital; Physician to the Children's Department of the Howard Hospital; Member of the American Gynæcological Society. 351 pages. 12mo. Cloth, \$2.00

"This manual is, unlike many of its class, not a mere compilation, but contains a number of practical hints not usually found in larger works. The chapters on the diagnosis of pregnancy, the treatment of normal and premature labor, operative obstetrics, the puerperal state, and post-partum hemorrhage commend themselves especially by their clearness and conciseness. If the advice given in Chapter VI, on the examination of patients before the beginning of labor, were generally followed there would be an immense difference in the maternal and foetal mortality. The chapter on the laceration of the perineum and pelvic floor is a useful one. The style is clear and concise, the illustrations helpful; in fact, the work is one which deserves, and will obtain, a wide circulation."—*The Medical Record.*

CROCKER. DISEASES OF THE SKIN. Second Edition. Their Description, Pathology, Diagnosis, and Treatment, with Special Reference to the Skin Eruptions of Children. By H. RADCLIFFE CROCKER, M.D., F.R.C.P., Physician to the Department of Skin Diseases, University College Hospital, London. 92 Illustrations. Enlarged. Octavo. Cloth, \$4.50

"It is one of the most thorough treatises on diseases of the skin that it has ever been our good fortune to review, and, as such, we heartily commend it to our readers."—*New York Medical Journal.*

P. BLAKISTON, SON & CO., Publishers and Booksellers,
1012 WALNUT STREET, PHILADELPHIA.

ARE NET.

Gould's Medical Dictionary

INCLUDING THE

PRONUNCIATION, ACCENTUATION, DERIVATION, AND DEFINITION OF THE TERMS USED IN Medicine, Anatomy, Surgery, Obstetrics, Gynecology, Therapeutics, Materia Medica, Pathology, Dermatology, Pediatrics, Ophthalmology, Otology, Laryngology, Physiology, Neurology, Histology, Toxicology, Dietetics, Legal Medicine, Psychology, Climatology, etc., etc.,

AND THE

VARIOUS SCIENCES CLOSELY RELATED TO MEDICINE:

Bacteriology, Parasitology, Microscopy, Botany, Zoology, Dentistry, Pharmacy, Chemistry, Hygiene, Electricity, Veterinary Medicine, etc.

PRICES AND BINDING:

Full Medical Sheep, Raised Bands, Net, \$10.00

Half Green Morocco, Marbled Edges, Net, \$10.00

With Thumb Index, Net, \$11.00.

Half Russia, Marbled Edges, Thumb Index, Net, \$12.00

THE STANDARD MEDICAL REFERENCE BOOK.

From The Boston Medical and Surgical Journal:—

"So far as the test of daily use has been made no word has been found wanting, while the arrangement of biological and bacteriological terms gives the greatest satisfaction. The volume is of a size to be easily used, and contains about 1630 pages; yet within that space is epitomized, and that without any sacrifice of clearness, a **larger amount of information than in any other similar book we know.** Much of this is accomplished by the judicious and skilled use of tables, which at once economizes space and makes comparison easy. Besides the ordinary tables of muscles, nerves, and arteries, there are several deserving of special mention, such as the tables of stains and tests, giving the names and agents employed, as well as the methods of application and reactions. **The table of named operations is of particular excellence,** while the long tables of parasites and bacteria are probably the most complete lists ever published. A special index for ready reference to the tables shows a list of considerably over one hundred of those collections of tabulated facts.

"The illustrations are exceptionally clear, and are used with discretion, so as to be of considerable help."

. A very handsome circular containing sample pages and illustrations will be sent free upon application.

GYNECOLOGY.

WELLS.

From The Southern Clinic.

"We know of no series of books issued by any house that so fully meets our approval as these ?Quiz Compends?. They are well arranged, full, and concise, and are really the best line of text-books that could be found for either student or practitioner."

BLAKISTON'S ?QUIZ=COMPENDS?

The Best Series of Manuals for the Use of Students.

Price of each, Cloth, \$0.80 net. Interleaved, for taking Notes, \$1.25 net.

☞ These Compends are based on the most popular text-books and the lectures of prominent professors, and are kept constantly revised, so that they may thoroughly represent the present state of the subjects upon which they treat.

☞ The authors have had large experience as Quiz-Masters and attaches of colleges, and are well acquainted with the wants of students.

☞ They are arranged in the most approved form, thorough and concise, containing over 600 fine illustrations, inserted wherever they could be used to advantage.

☞ Can be used by students of *any* college.

☞ They contain information nowhere else collected in such a condensed, practical shape.

Illustrated Circular Free.

- No. 1. **POTTER'S ANATOMY.** Fifth Revised and Enlarged Edition. Including Visceral Anatomy. Can be used with either Morris' or Gray's Anatomy. 117 Illustrations and 16 Lithographic Plates of Nerves and Arteries, with Explanatory Tables, etc.
- No. 2. **HUGHES. PRACTICE OF MEDICINE.** Part I. Fifth Edition, Revised, Enlarged, and Improved.
- No. 3. **HUGHES. PRACTICE OF MEDICINE.** Part II. Fifth Edition, Revised, Enlarged, and Improved. These two books furnish a complete set of notes on the Practice of Medicine, including Mental and Nervous Diseases.
- No. 4. **BRUBAKER. PHYSIOLOGY.** Seventh Edition, with new Illustrations and a table of Physiological Constants. Enlarged and Revised.
- No. 5. **LANDIS. OBSTETRICS.** Fifth Edition. Revised and Edited by Wm. H. WELLS, M. D., Ass't Dem., Jefferson Medical College, Phila. 47 Illustrations.
- No. 6. **POTTER. MATERIA MEDICA, THERAPEUTICS, AND PRESCRIPTION WRITING.** Sixth Revised Edition. Based on the new U. S. P.
- No. 7. **WELLS. GYNÆCOLOGY.** A New Book. With many Illustrations.
- No. 8. **FOX and GOULD. DISEASES OF THE EYE AND REFRACTION.** Second Edition. Including Treatment and Surgery. With 39 Formulæ and 71 Illustrations.
- No. 9. **HORWITZ'S SURGERY,** Minor Surgery, and Bandaging. Fifth Edition, Enlarged and Improved. With 98 Formulæ and 167 Illustrations.
- No. 10. **LEFFMANN. CHEMISTRY.** Inorganic and Organic. Fourth Edition. Including Urinalysis; Animal Chemistry, Chemistry of Milk, Blood, Tissues, the Secretions, etc. Revised in accordance with new U. S. P.
- No. 11. **STEWART. PHARMACY.** Fifth Edition. Based upon Prof. Remington's Text-Book of Pharmacy. Carefully revised in accordance with the new U. S. P.
- No. 12. **BALLOU. VETERINARY ANATOMY AND PHYSIOLOGY.** With 29 graphic Illustrations.
- No. 13. **WARREN. DENTAL PATHOLOGY AND DENTAL MEDICINE.** Second Edition, Illustrated. Containing all the most noteworthy points of interest to the Dental Student and a Section on Emergencies.
- No. 14. **HATFIELD. DISEASES OF CHILDREN.** Colored Plate. Second Ed.
- No. 15. **HALL. GENERAL PATHOLOGY AND MORBID ANATOMY.** 91 handsome Illustrations. By H. NEWBERRY HALL, PH.G., M.D., Professor of Pathology and Medical Chemistry, Chicago Post Graduate Medical School.
- No. 16. **HALL. DISEASES OF THE EAR AND NOSE,** with many Illustrations.

Price, each, \$0.80 net. Interleaved, for taking Notes, \$1.25 net.

**P. BLAKISTON, SON & CO., PUBLISHERS,
PHILADELPHIA.**

? QUIZ-COMPENDS? No. 7.

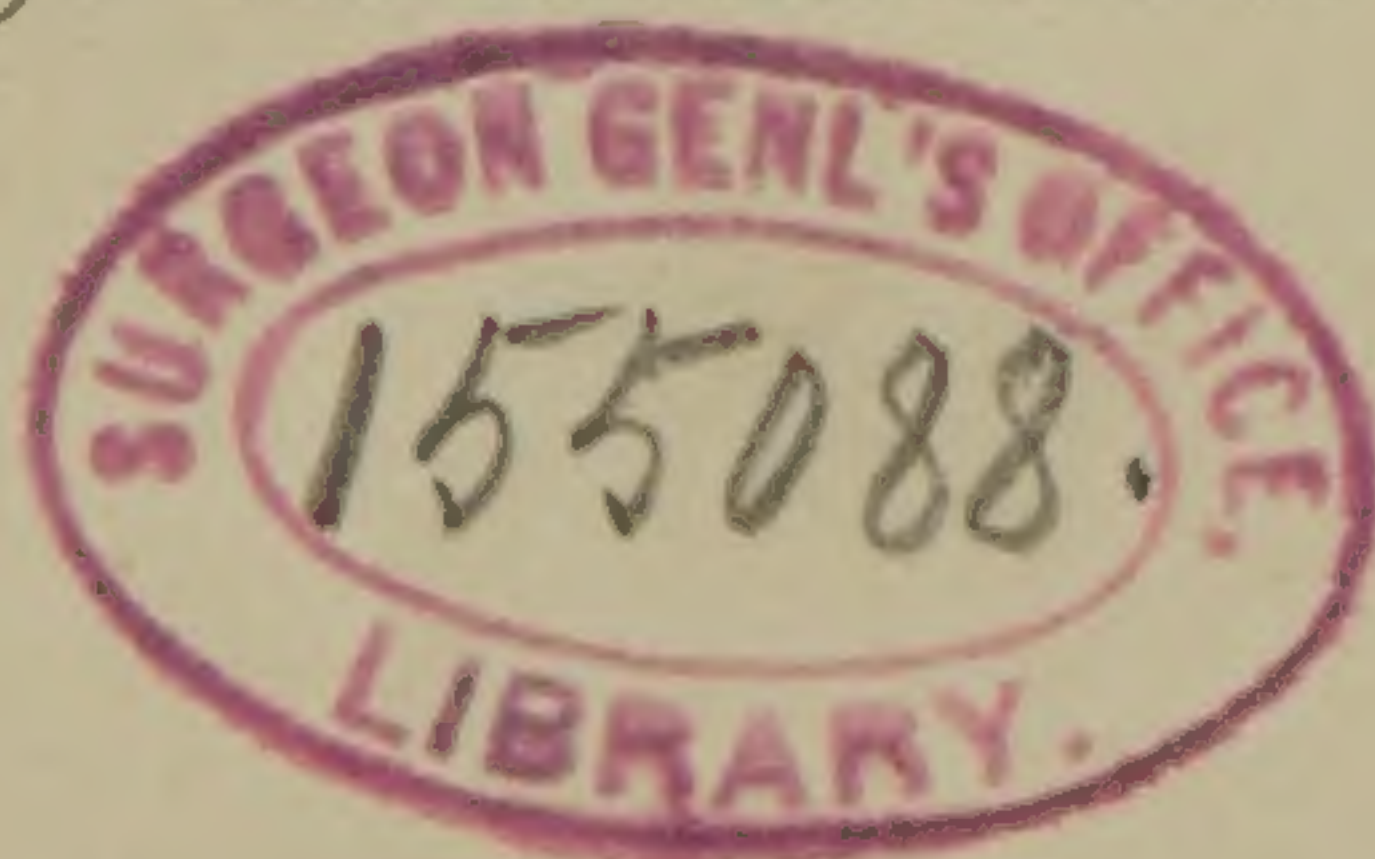
A
COMPEND
OF
GYNECOLOGY

BY

WILLIAM H. WELLS, M.D.,

ADJUNCT PROFESSOR OF OBSTETRICS AND DISEASES OF INFANCY IN THE PHILADELPHIA
POLYCLINIC; LATE ASSISTANT DEMONSTRATOR OF CLINICAL OBSTETRICS
IN THE JEFFERSON MEDICAL COLLEGE, PHILADELPHIA, ETC.

WITH 150 ILLUSTRATIONS.



PHILADELPHIA:
P. BLAKISTON, SON & CO.,
1012 WALNUT STREET.
1896.

Anney

W.P

140

W456c

1896

COPYRIGHT, 1896, BY P. BLAKISTON, SON & Co.



PRESS OF WM. F. FELL & CO.,
1220-24 SANSOM ST.,
PHILADELPHIA.

TO
SURGEON HOWARD WELLS, U. S. NAVY,
THIS COMPEND IS GRATEFULLY DEDICATED
BY HIS BROTHER.

PREFACE.

In placing this little book before the medical profession, the author is fully aware of there being little that is original in its pages; however, a number of years' experience as demonstrator and quizmaster have convinced him that, notwithstanding the necessary lengthening of college courses and the more thorough division of teaching caused by the immense progress in the medical sciences, there is still a demand among students for a book which will be a condensation of the best teachings of the present day, and with this object in view this little book has been written. In its preparation, the writings of such teachers as Thomas and Mundé, the editors of the "American Text-book of Gynecology," Emmet, Pozzi, Winckel, Goodell, Montgomery, Parvin, and many others, also articles contained in various American and foreign journals, have been freely abstracted from. In the descriptions of various gynecologic operations, the author has endeavored to take some standard authority, rather than to describe the various modifications made by individual operators or teachers. A larger number of illustrations than is usually found in compends has been introduced to add clearness to the teaching of the work.

In conclusion, the author desires to thank his teacher and friend, Professor Edward P. Davis, for his valuable help and encouragement in the early preparation of this book, and Drs. W. O. Xander, W. A. Simpson, and C. H. Fritz, assistants in the Out-Patient Department of the Polyclinic Hospital, for their help in reading proof and the preparation of the index.

WILLIAM H. WELLS, M. D.

333 PINE STREET, *April 8, 1896.*

TABLE OF CONTENTS.

	PAGE
ANTISEPSIS IN GYNECOLOGY,	9
GYNECOLOGIC EXAMINATION,	18
Position of the Patient,	19
GYNECOLOGIC DIAGNOSIS,	22
Percussion and Auscultation,	24
THE EXTERNAL GENITALIA,	50
DISEASES OF THE EXTERNAL GENITAL ORGANS,	53
Vulvitis,	53
Pruritus Vulvæ,	58
Cyst of Vulvovaginal Gland,	59
Abscess of the Vulvovaginal Gland,	59
Hernia into the Labium Majus,	60
Hydrocele of the Round Ligament,	61
Pudendal Hematoma,	61
Hemorrhage from the Vulva,	62
Cutaneous Diseases of the Vulva,	62
Tumors of the Vulva,	65
Malignant Tumors of the Labia and Vulva,	66
Vaginismus,	66
Coccygodynia,	67
Urethral Caruncle,	68
Urethrocele,	69
Urethral Stricture,	69
Prolapse,	69
Vulvovaginal Hyperesthesia,	70
ANATOMY OF THE VAGINA,	71
DISEASES OF THE VAGINA,	72
Atresia of the Vagina,	72
Hematocolpos,	73
Prolapse of the Vaginal Walls,	74
Inflammation of the Vagina,	86
Malignant Neoplasms of the Vagina,	90
Genital Fistulæ,	91
Fecal Fistula,	92
Urethrovaginal Fistulæ,	94
Vesicouterine Fistula,	95
Rectovaginal Fistula,	95

	PAGE,
ANATOMY OF THE UTERUS,	95
DISEASES OF THE UTERUS,	96
✓ Deviations in Position,	99
Ascent of the Uterus,	102
Anterior, Posterior, and Lateral Displacements of the Uterus,	102
Anteflexion,	103
Anteversión,	107
Posterior Displacements,	112
Acquired Posterior Displacements,	114
Prolapse of the Uterus,	129
✓ Inversion of the Uterus,	134
Deviations in Function,	141
Amenorrhea,	141
Menorrhagia and Metrorrhagia,	144
Dysmenorrhea,	145
Anomalies of the Uterus,	150
Atresia and Stenosis of the Cervical Canal,	151
Supra- and Infravaginal Hypertrophy of the Cervix,	154
Lacerations of the Cervix Uteri,	155
Endometritis,	160
Chronic Endometritis,	163
Metritis,	167
Chronic Metritis,	169
TUMORS OF THE UTERUS,	171
Fibroid Tumors,	171
Uterine Polypi,	185
Sarcoma of the Uterus,	192
ANATOMY OF THE OVIDUCTS,	199
DISEASES OF THE OVIDUCTS,	200
Salpingitis,	200
Tuberculosis of the Oviducts,	205
Pelvic Hematocele,	205
ANATOMY OF THE OVARY,	209
DISEASES OF THE OVARIES,	211
Displacements of Ovaries and Tubes,	211
Congestion of the Ovaries,	212
Oophoritis,	213
Acute Oophoritis,	213
TUMORS OF THE OVARY,	217
Solid Tumors of the Ovary,	217
Cystic Tumors of the Ovary,	219
DISEASES OF THE PERITONEUM AND CELLULAR TISSUE,	238
Pelvic Peritonitis,	238
DISEASES OF THE BLADDER,	239
Hypospadias and Epispadias,	239
Irritability of the Bladder,	240
Cystitis,	240

LIST OF ILLUSTRATIONS.

FIG.	PAGE
1. Mikulicz Drain,	17
2. Examination Chair,	19
3. Examination Table,	19
4. Dorsal Position,	21
5. Modified Dorsal Position,	21
6. Dorsosacral Position, showing Application of Leg Straps, . . .	21
7. Trendelenberg Position,	21
8. Left Lateral or Sims' Position,	21
9. Genu-Pectoral Position,	21
10. Digital Examination—Touching the Cervix,	27
11. Diagram Showing Position of the Ureters,	28
12. Digital Eversion of the Rectum,	29
13. Bimanual Palpation of Uterus,	31
14. Bimanual Palpation; Abdominorectal Method,	34
15. Simpson's Sound,	35
16. Sims' Sound,	35
17. Jenks' Sound,	35
18. Thomas' Sound,	35
19. Introduction of Sound,	37
20. Introduction of Sound Through Speculum,	38
21. Fergusson's Speculum,	39
22. Sims' Speculum,	39
23. Higbee's Bivalve Speculum,	40
24. Trivalve Speculum,	40
25. Sims' Depressor,	41
26. Tenacula,	42
27. Vulsellum Forceps,	43
28. Uterine Dressing Forceps,	43
29. Applicator,	43
30. Uterine Syringe,	44
31. Slippery Elm Tent,	44
32. Hegar's Dilator,	46
33. Ellinger's Dilator,	47
34. Goodell's Dilator, Heavy,	47
35. Barnes' Bag,	48
36. Wire-loop Curettes,	49
37. Sharp Curette,	49

FIG.	PAGE
38. Dull-edged Douche Curette,	49
39. External Genitalia of Female,	51
40. Follicular Vulvitis,	57
41. Abscess of the Vulvovaginal Gland,	59
42. Elephantiasis of Vulva,	65
43. Urethral Caruncle,	68
44. Prolapse of Urethra,	70
45. Cystocele and Rectocele,	74
46. Gehrung's Pessary,	75
47. Stoltz's Operation,	76
48. Emmet's Operation, First Step,	77
49. Emmet's Operation, Second Step,	77
50. Moderately Curved Scissors,	80
51. Tooth Forceps,	80
52. Emmet's Operation for Incomplete Laceration of Perineum, . .	81
53. Diagram Showing Shape of Areas of Denudation made in Principal Operations for Posterior Colporrhaphy and Restoration of the Perineum,	82
54. Surface Denuded in Complete Perineal Rupture, and First Two Sutures for Uniting Torn Ends of Sphincter Ani in Position, .	83
55. Flap-splitting Operation for Incomplete Laceration of the Perineum, Lines of Incision,	84
56. Flat-splitting Operation for Complete Laceration of the Perineum, Lines of Incision,	84
57. Flap-splitting Operation for Lacerated Perineum,	85
58. Granular Vaginitis,	87
59. Gonococcus of Neisser,	89
60. Location of Various Forms of Fistulæ,	91
61. Operation for Vesicovaginal Fistula. Vivifying Edges of Fistula, .	93
62. Showing Beveling of Edges,	93
63. Course of the Needle,	93
64. Virgin Uterus,	96
65. Vertical Section of the Pelvic Viscera of an Adult Virgin, . . .	97
66. Topography of Normal Female Pelvic Organs,	98
67. Pelvic Organs, Showing Position of Uterus with Bladder Distended,	100
68. Pelvic Organs, Showing Position of Uterus with Rectum Distended,	101
69. Antelexion,	102
70. Slight Deviation from Normal Position,	102
71. Retroflexion of Body,	102
72. Anteversion,	102
73. Retroversion,	102
74. Retroflexion,	102
75. Antelexion of the Uterus,	103
76. Retroposition with Antelexion,	104
77. Degrees of Anteversion,	108
78. Douche Curette,	110

FIG.	PAGE
79. Thomas' Anteversion Pessary in Position,	110
80. Graily Hewitt's Anteversion Pessary,	111
81. Retroflexion,	113
82. Knee-chest Position, Showing Reposition of the Uterus by Gravity and Pressure of Air in the Vagina,	119
83. Rotation of Sound Preparatory to Replacement of Uterus, . .	120
84. Replacement of Uterus by Depressing the Handle of Sound, .	120
85. Diagnosis and Reduction of Retroflexion by the Sound, . . .	121
86. Topographic Anatomy of the Round Ligament,	122
87. Gastrohysteropexy or Ventrofixation,	123
88. Mackenrodt's Operation,	124
89. Hodge Pessary,	126
90. Thomas Pessary,	126
91. Introduction of Pessary, First Stage,	127
92. Introduction of Pessary, Second Stage,	128
93. Introduction of Pessary, Third Stage,	128
94. Introduction of Pessary, Fourth Stage,	129
95. Cystocele and Rectocele,	131
96. Braun's Colpeurynter,	133
97. Thomas-Cutter Pessary,	134
98. Three Degrees of Inversion,	135
99. Polypus,	137
100. Inversion,	137
101. Fibrous Polypus,	138
102. Partial Inversion,	138
103. Rapid Reduction by White's Method,	140
104. Partly Restored Uterus Sustained by Closure of Os Externum, .	141
105. Crucial Incision of External Os for Dysmenorrhea,	147
106. Dysmenorrheal Membrane,	149
107. Müller's Ducts,	150
108. Coalescence of Ducts,	150
109. Disappearance of Septum,	151
110. Appearance of Fundus and Cervix,	151
111. Unilateral Laceration of the Cervix,	155
112. Bilateral Laceration of the Cervix with Eversion of the Cervical Mucous Membrane,	155
113. Stellate Laceration of the Cervix,	156
114. Emmet's Trachelorrhaphy, Showing Area of Denudation in a Bilateral Laceration of the Cervix,	158
115. Same, Showing Method of Inserting Stitches,	158
116. Sutures Tied,	158
117. Schroeder's Operation. Line of Excision in Excision of the Cervical Mucous Membrane and Method of Inserting First Stitch,	160
118. Schroeder's Operation. Method of Drawing In Excised Ends of Cervix,	160
119. Subserous Fibroid,	171
120. Interstitial Fibroids,	171

FIG.	PAGE
121. Subserous and Submucous Fibroid,	172
122. Avulsion Forceps,	176
123. Arrangement of Operating Room. (<i>Byford</i>),	178
124. Serre-Nœud,	179
125. Application of Silk Ligature to Prevent Slipping of Knot, . .	179
126. Suture of the Abdominal Wall about the Pedicle,	180
127. Suture of Pedicle in the Intraperitoneal Method. (<i>Schroeder</i>),	181
128. Deschamps' Needles,	182
129. Application of Ligatures in Ablation of the Fibroid Uterus, . .	183
130. Epithelioma Affecting Anterior Lip of Cervix,	187
131. Epithelioma Affecting Posterior Lip of Cervix,	188
132. Epithelioma Affecting Both Lips of Cervix, Vagina and Bladder,	188
133. Vaginal Hysterectomy,	194
134. Vaginal Hysterectomy,	195
135. Vaginal Hysterectomy,	196
136. Normal Fallopian Tube. (<i>Wyder</i>),	199
137. Double Hydrosalpinx,	201
138. Large Hematosalpinx,	202
139. Pyosalpinx with Oophoritis and Universal Adhesions Masking the Ovary. (<i>Mundé</i>),	203
140. Intraperitoneal Hematocele,	205
141. Extraperitoneal Hematocele,	206
142. Fallopian Tube and Ovary, Seen from Behind. (<i>After Morris</i>),	209
143. Spindle-celled Sarcoma of the Ovary,	218
144. Ovarian Tumor Weighing 140 Pounds,	220
145. Microscopic Examination of Fluid from Ovarian Tumors, . .	221
146. Papillary Cystoma of Right Ovary,	223
147. Double Dermoid Cysts Removed During Pregnancy. (<i>Mundé</i>),	223
148. Showing the Area of Dullness,	227
149. Staffordshire Knot,	233
150. Triple-Ammonium Magnesia Phosphates,	241

A COMPEND OF GYNECOLOGY.

ANTISEPSIS IN GYNECOLOGY.

All the rules of asepsis and antisepsis used in general surgery find an equally important place in gynecology, and a clear understanding of their definitions and the strictest methods of their execution are absolutely necessary in the scientific practice of the same. By sepsis is usually understood an infective process more or less general, resulting from the presence of pathogenic, generally pus-producing, microorganisms, of which the species most commonly found are the staphylococcus pyogenes albus, staphylococcus pyogenes aureus, and streptococcus pyogenes. Other forms of organisms, such as the bacillus coli communis and the gonococcus, may play an important part in septic infection; the former is frequently met with in post-operation peritonitis following intestinal wounds ("American Text-book of Gynecology"), the latter is a frequent cause of vaginal catarrh, the infection extending often to the urethra, bladder and even into the ureters and kidneys. While any of the above forms of microorganisms may exist in the genital tract, they are more apt to be found in certain locations: thus the gonococcus of Neisser is most generally found in the cervix, the urethra or the folds of membrane at the mouth of the latter; the staphylococcus pyogenes aureus and the streptococcus pyogenes are often met with in cultures taken from abscesses in and around the Fallopian tubes.

Asepsis is the absence of all septic pathogenic microorganisms. Antisepsis is the destruction of all pathogenic microorganisms, either by mechanic or chemic means, by both combined or by heat. The greatest efforts of the operator and his assistants should be directed toward attaining the aseptic condition, which can be accomplished only by carefully cleansing his person and instruments. On the part of the patient, all wounds not previously containing pus, or infected by the surgeon or assistants, can be kept aseptic. Given a clean wound, with a little care on the part of the operator, it is much easier to keep out septic germs than to destroy them and their effects, after they have once fairly made an entrance.

Methods of Asepsis and Antisepsis.—In considering the general technic of the preparation for a gynecologic operation, the subject will be considered as follows: First, the patient; second, the room; third, the operator and assistants; fourth, the instruments, etc.

First. *The Patient.*—For two or three days previous to the operation she should have at least two vaginal injections of one of the following: a solution of bichlorid of mercury 1 : 2000, solution of creolin five to ten per cent., creolin and green soap equal parts. In operations in and about the vulva or near the pubes, the hair on the mons veneris should be shaved off. The field of operation must be thoroughly scrubbed with soap and warm water, a nail-brush being used, this followed by a washing with ether and lastly with corrosive sublimate 1 : 1000.

Before abdominal operations, the abdomen should next be covered with a good-sized pad of sterilized gauze fastened by a broad binder. In operations in and about the vagina, injections of solutions of creolin and green soap, or creolin of a strength of from five to ten per cent., are as a general rule preferable to bichlorid of mercury. During the injection a tampon or ball of absorbent cotton or gauze should be inserted by means of dressing forceps and moved about in order that all folds of the vaginal mucous membrane may be thoroughly stretched and cleaned. The vulva should be covered with a sterilized pad or napkin. Some hours before operation, the patient should be given a purgative of aloes, gr. 1; belladonna, gr. $\frac{1}{6}$; strychnia, gr. $\frac{1}{30}$ ("Ameri-

can Text-book of Gynecology''); calomel, or magnesia sulphate. On the morning of the operation an enema should be given. When, as occasionally happens, the action of the purgative is delayed and there is danger of the feces being evacuated over the operator's person, some authors recommend passing a suture twice through the anus. Immediately before operation, the bladder should always be evacuated by means of a catheter. The field of operation should be separated from surrounding parts by sterilized towels or by three or four thicknesses of gauze. In vaginal operations it is recommended that a diaphragm composed of several thicknesses of gauze be laid over the vulva, inner surface of the thighs and buttocks, reaching well down below the border of the table, and that the operation be done through a slit in the center of this. Where possible it is well to prepare the patient's system for the operation some time in advance, by tonics, good nutrition and easily digested food at frequent intervals, and the skin made active by baths and massage.

The Operating Room.—If in a hospital, the operating room should not be in immediate communication with the ordinary wards, where septic or infectious cases may be. The most important considerations are cleanliness and a good light. Where possible, the floor should be of stone, concrete, or closely joined boards treated with paraffin. The walls should be either of stone, encaustic tiles, or enameled wood, so that walls, floor and ceiling can easily be washed by a hose, which should be done before and after each operation. All shelving and furniture should be of metal, glass, or enameled wood. Hot and cold water should be constantly ready on tap. Some operators however, prefer that stationary wash-stands and tubs should be in another room. A north light is considered the best. All operating rooms should be provided with large skylights and windows, but should not admit the direct rays of the sun. A side light is looked upon with favor by some authorities. All dressings, ligatures, sponges, etc., should be stored in glass jars. It is convenient if the operating room has an opening from it into another room in which the patient can be anesthetized. If the operation is to be done in a private house, the preparations should be made two or three days in advance. All furniture and curtains should be taken out. If the walls can-

not be whitewashed with lime or washed down with an antiseptic solution, they should be covered with cloths wet with carbolic acid five per cent. or corrosive sublimate 1 : 500. A kitchen table and two chairs for the patient's feet will answer for an operating table, and where the Trendelenberg position is required a Krug frame can be conveniently fitted on the table. After being once cleaned the room should be closed and not again opened until the day of operation. Some authorities recommend that sulphur be burned in the room some hours before the operation begins. The temperature of the room during the operation should be from 77° to 87° F. (25° to 30° C.). Pozzi recommends that the air of the room should be kept moist by means of a carbolic spray from a steam atomizer, directed not on the area of operation but toward the center of the room and upward. There should be a plentiful supply of distilled water in demijohns, or this not being obtainable, boiling water will answer quite well.

The Operator and His Assistants.—It is of primary importance that neither the operator nor any of his assistants should have attended a postmortem, handled pathological specimens, a septic wound or case of contagious disease for at least forty-eight hours before the operation. If, however, he has, a bath of bichlorid of mercury with energetic rubbing should be resorted to. The finger nails should be protected by cutting them close and covering them with soap or vaselin. The surgeon should be protected by a rubber apron to cover his clothing and over this a long gown belted at the waist, or a linen apron with sleeves which can be drawn down over the shirt sleeves and tied. Some operators prefer a jacket opening at the back, made of butcher's linen, with pantaloons of the same material.

The hands of the gynecologist and his assistants should be prepared as follows: The hands and forearms being bared to the elbow, should first be thoroughly soaped either with ordinary soap or a preparation of soft soap and ether and scrubbed with a stiff nail brush. It is well to keep this brush in a vessel containing a solution of carbolic acid, and covered from the air. After thus washing the hands, the soap must be entirely removed and the hands and arms bathed in alcohol. They are to be then soaked for about five minutes in a solution of bichlorid of mercury

1 : 500 or 1 : 1000, after which they are washed in distilled water.

Another method of preparing the hands is as follows: After washing with soap and water they are covered with a hot saturated solution of permanganate of potash until they are stained reddish brown, after which they should be well washed with a saturated solution of oxalic acid until all the permanganate is removed. Milk of lime may be used to wash off the oxalic acid, though sterilized water will do. The latter method of sterilization is particularly recommended by Pozzi in suspicious or septic cases. In order to deodorize the hands after handling cancer, Foulis, of Edinburg, recommends, in addition to antiseptics, the use of essence of turpentine. In operations in and around the vagina, hot creolin solution makes a good antiseptic for the hands. The hands of all the direct assistants and nurses attending must be similarly prepared.

Instruments.—The instruments should be simply constructed, preferably of one piece of metal, all ornamentations and mountings being avoided. If of necessity their parts are separable, they should be constructed to be easily taken apart, and cleaned. Before using at an operation, they should be boiled for five minutes in a ten per cent. solution of carbonate of soda. The soda prevents rusting. In boiling, a sterilizer containing wire gauze trays will be found convenient, but if this is not at hand, the instruments can be placed in a linen bag and boiled in the ordinary Arnold sterilizer, or even a clean boiler such as is used for domestic purposes. After the operation, they should be placed in hot water, and washed with common soap and a scrubbing brush; they are then rinsed in hot water, rapidly dried and placed in a dry towel. Occasionally it is well to rub them with the finest grade of sapolio, or with magnesia, afterward polishing them with other very fine sand-soap. If the instruments have been used in a septic case of any sort, they should be sterilized before putting them away, this sterilization being effected either by boiling as before, or as is recommended by Pozzi, by placing them for half an hour in strong boiling carbolic solution, or to keep in a sterilizing oven at 140° C. for an hour. During the operation the instruments should be sorted in the order of their use, and placed

in pans containing boiling water or five per cent. carbolic solution.

Ligatures, Sutures, Dressings, etc.—The substances most generally used for ligatures and sutures are silk, catgut, and silk-worm gut. Silver wire is still to some extent used, but silk-worm gut has to a great extent replaced it. Animal tendon, particularly kangaroo tendon, is used by some operators but though good, is rather expensive for general use.

SILK.—Should be of twisted Chinese, the most tenacious being the flat-plaited variety. Is generally in three sizes: The finest, often used for threading in a loop, to draw sutures through the tissues; it is then called a "carrier."

Second size or intermediate, used for ligatures and sutures.

Third size or heavy, used for ligation in vaginal hysterectomy.

Preparation.—It should be prepared in small quantities, by winding or wrapping in a loose skein and boiling for an hour in carbolic solution 50 : 1000. It is then wrapped on glass plates, immersed in a fresh solution of carbolic, of the same strength as before, which is renewed every eight days (*Pozzi*). It can also be prepared by boiling for an hour or placing for a number of hours in a solution of acid sublimate of mercury 1 : 1000, then placing in absolute alcohol for use (*Montgomery*). It can be loosely rolled on glass reels and placed inside pieces of glass-tubing cut for the purpose. Both ends of the tubes are then closed with cotton and they are placed in the sterilizer, and boiled for an hour. This process is repeated a half hour on two succeeding days. The silk should be cut in convenient lengths before placing in the tubes ("American Text-book of Gynecology"). Silk may also be prepared by immersing for twenty-four hours in an ethereal solution of iodoform (20 : 100).

SILK-WORM GUT is prepared in the same manner as silk. A convenient way of keeping it is in a glass tube of sufficient length to keep the strands straight. The tube is stopped at both ends with corks after being filled with alcohol.

CATGUT is prepared as follows:—

JUNIPERIZED CATGUT.—Immerse for an hour in an alcoholic solution of corrosive sublimate 1 : 1000, then plunge into juniper oil for at least eight hours, then take out and preserve in a solution

one-tenth oil of juniper, nine-tenths alcohol. Before using, place in an alcoholic sublimate solution 1 : 1000 for a few minutes; this swells it and gives it greater pliability. It may be prepared by prolonged boiling in alcohol for a number of hours. David's apparatus, in which the vapor of alcohol is recondensed, is the most economical method of sterilizing in this way. It may be rolled on spools of glass and should be kept in alcohol. It must not come in contact with water.

CHROMICIZED CATGUT.—Place in ether, allowing it to remain from twenty-four to forty-eight hours to dissolve out fatty substances. Then place in a five per cent. solution of carbolic acid in which one grain to the ounce of bichromate of potash has been dissolved. Let it remain in this from twenty-four to forty-eight hours according to size of catgut. It is then placed in absolute alcohol for use. Silver wire is preserved in alcohol after being sterilized at a temperature of 120° C.

All cords and tubes such as are used for elastic ligatures and drainage tubes should be left for ten minutes in boiling water, after which they are preserved in strong carbolic water or sublimate solution.

Method of Preparing Sponges.—Gauze compress sponges are to be preferred to marine sponges. Pozzi, following the method of Billroth, prefers them even in abdominal operations. Carefully prepared, they are also recommended by Prof. Keen, of Philadelphia. Fold a piece of gauze into squares of 12 inches (30 centimeters), composed of eight thicknesses, and cut; the squares must be coarsely stitched along the edges. They can be sterilized by boiling for two hours in a five per cent. carbolic solution, bichlorid of mercury 1 : 1000, or by heat. They should be carefully packed in jars and protected from the air. Pozzi recommends that they be carefully washed in sterilized water and wrung out as dry as possible. They make a powerful absorbing agent. Of course they are burned after being once used.

Preparation of Marine Sponges.—Pound the sponges in a wooden bowl to free them from sand and grit; afterward wash them in warm water several times until the water is clear. Soak for twenty-four hours in dilute muriatic acid, 3ij to Oj to remove all particles of chalk. Pass quickly through five per cent. solution of perman-

ganate of potash, which stains them a dark purple. Decolorize by immersing in a saturated solution of oxalic acid. Before the sterilization of sponges the hands should be disinfected in the same manner as for operation. The acid solution is neutralized by immersing them in a sterilized lime solution, after which they are placed for twelve hours in a sublimate solution 1 : 1000. They are then stored away in a three per cent. carbolic acid solution, after rinsing twice in sterilized water. They must be kept in air-tight glass jars.

A second method of preparation is by immersing the sponges in a saturated solution of carbonate of soda for forty-eight hours, after washing free from the hydrochloric acid. The soda is then thoroughly washed from them and they are placed in alcohol until used. After being once used they may be prepared for further use by passing through a saturated solution of soda, afterward placing them in a solution of sulphurous acid, strong enough to be sour to the taste, for twelve hours. Preserve for use in alcohol.

GAUZE.—Is cut in strips from the original rolls and sterilized by steam or dry heat, or may be prepared with bichlorid of mercury. Most operators reject the latter for abdominal use.

ABSORBENT COTTON.—Make into balls, cover with a clean towel and sterilize in a glass jar for about an hour. Steam or dry heat may be used.

DRAINAGE may be accompanied by glass, rubber, or gauze in various forms; the first and last, however, are most generally used. Glass tubes are generally perforated along the side from without inward, so as to permit free access of fluid. When used, great care must be exercised in keeping them clean, which is done by means of a long nozzled syringe, passing it to the bottom of the tube and sucking out the accumulated fluids. This at first should be done every fifteen minutes, and the time gradually lengthened to three or four times a day. The tube is removed in from twenty-four to thirty-six hours generally.

All surrounding parts must be carefully sterilized with bichlorid solution at each pumping of the tube and the hands of the surgeon must be strictly clean.

These tubes permit drainage but do not primarily cause it. Gauze drainage acts by capillary attraction and is therefore a

true drainage. It may be used in the form of the gauze bag invented by Mikulicz, consisting of a bag eight or nine inches long and about two inches in diameter, a string being carried to the bottom. The bag is loosely filled with gauze in strips. When it is necessary to remove, the strips are drawn out with sterilized

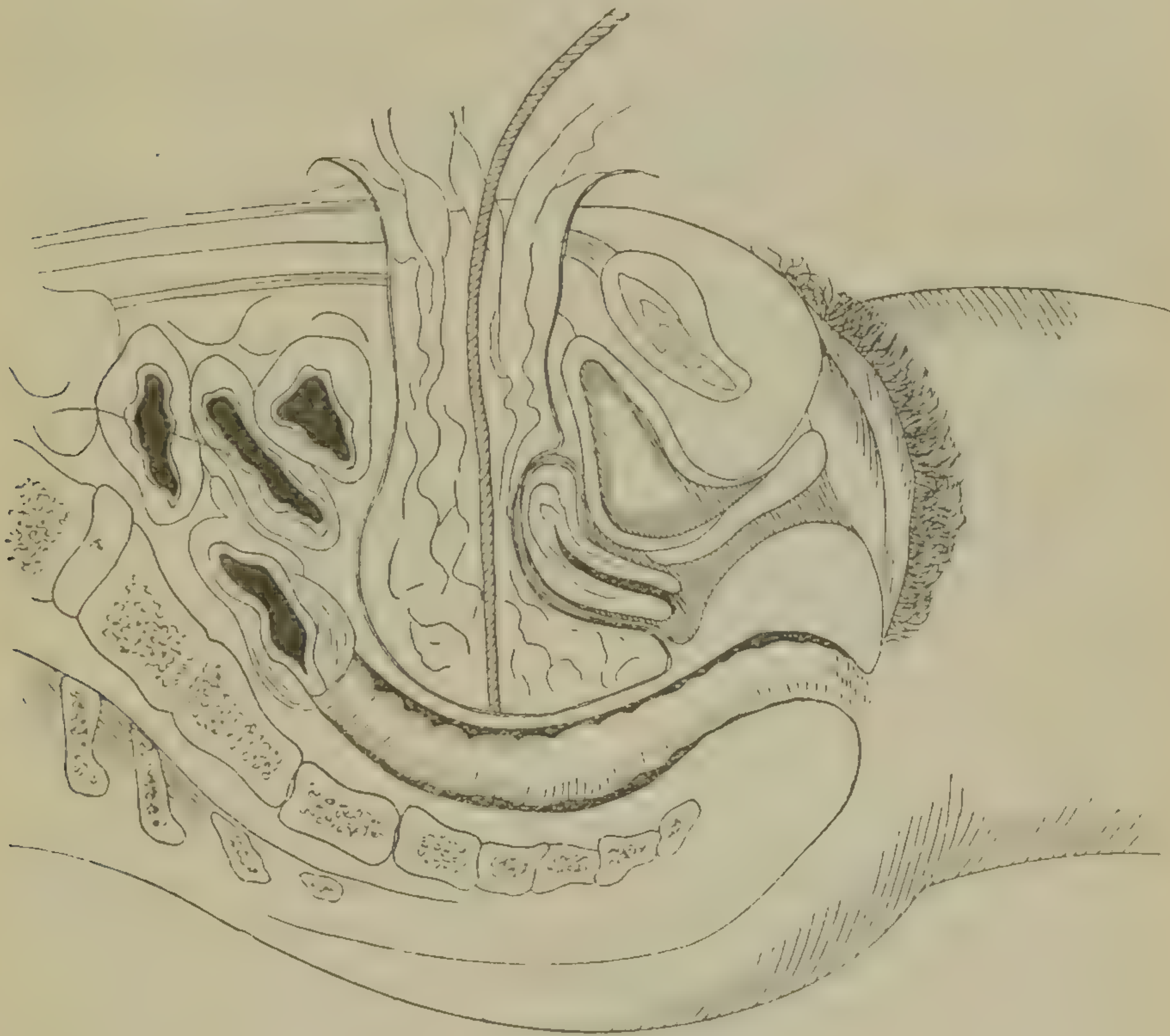


FIG. 1.—MIKULICZ DRAIN.

forceps and the bag inverted by pulling on the string. The incision is then closed by sutures. The other method of gauze drainage is by loosely rolling a strip one yard long and about three-fourths of an inch wide. A large pad of sterilized gauze must always cover the drain.

GYNECOLOGIC EXAMINATION.

Methods of Obtaining a History.—It is well, in obtaining the history of a patient to allow her first to tell the story of her complaint in her own words, as long as she confines herself to this subject. A gynecologist should never examine a patient with a preconceived idea of the diagnosis of the disease for the cure of which she comes to him. It is well, however, after satisfying himself that her symptoms point to a certain cause, to put to her a systematic series of questions, and the answers to these questions should be recorded in a book for future reference and study, or for publication. After taking her name, address, and age, with the date on which she first calls, the examiner should determine somewhat as follows: Is the patient married or single; has she ever been pregnant; the number of miscarriages and of children born at full term; the ages of the oldest and youngest child? If any miscarriages, at what period of pregnancy did they occur; were they after or before the birth of the last child; were her labors normal; were instruments or any form of obstetric operation required? What was the cause of the dystocia? From what does she think her present ailment arises? Her family history? Is there any inherited disease or tendency to disease? Regarding the patient's sexual life, the examiner should inquire the age at which menstruation first appeared; as to its regularity, quantity, duration, and character. If irregular or absent, the dates of the beginning and cessation should be inquired into. Should any pain or other symptom appear with menstruation, the seat, character and time of appearance should be determined. All vaginal discharges should be investigated. Vaginal leukorrhea is usually thin and watery; and when the discharge is cervical or uterine in origin, it is apt to be thick and tenacious and decidedly whitish in color. A thin, watery discharge containing shreds of tissue reddish in color and having a peculiar sickly odor of decomposition, points to malignant disease. The general health should be inquired into. Many patients having pelvic trouble have nearly constant headache. The condition of the bowels, digestion, lungs, and circulation should be inquired into. In many cases it is well to make a careful qualitative and quantitative examination of the urine.

Preparation for an Examination.—Before examination it is well that the patient should have had a mild laxative followed by an enema of soap and water; the bladder should be empty. When the examination is to take place at the patient's house, a sofa without arms may be used for an examination table, chairs should be placed for the patient's feet to rest on. When the examination must be made on a bed, the patient should be placed crosswise, and a board, such as is used for ironing, should be placed beneath the sheet, crosswise on the bed, and the patient laid on it. This will prevent the hips from sinking in the mattress. The feet can rest on two chairs. A common kitchen table covered



FIG. 2.—EXAMINATION CHAIR.

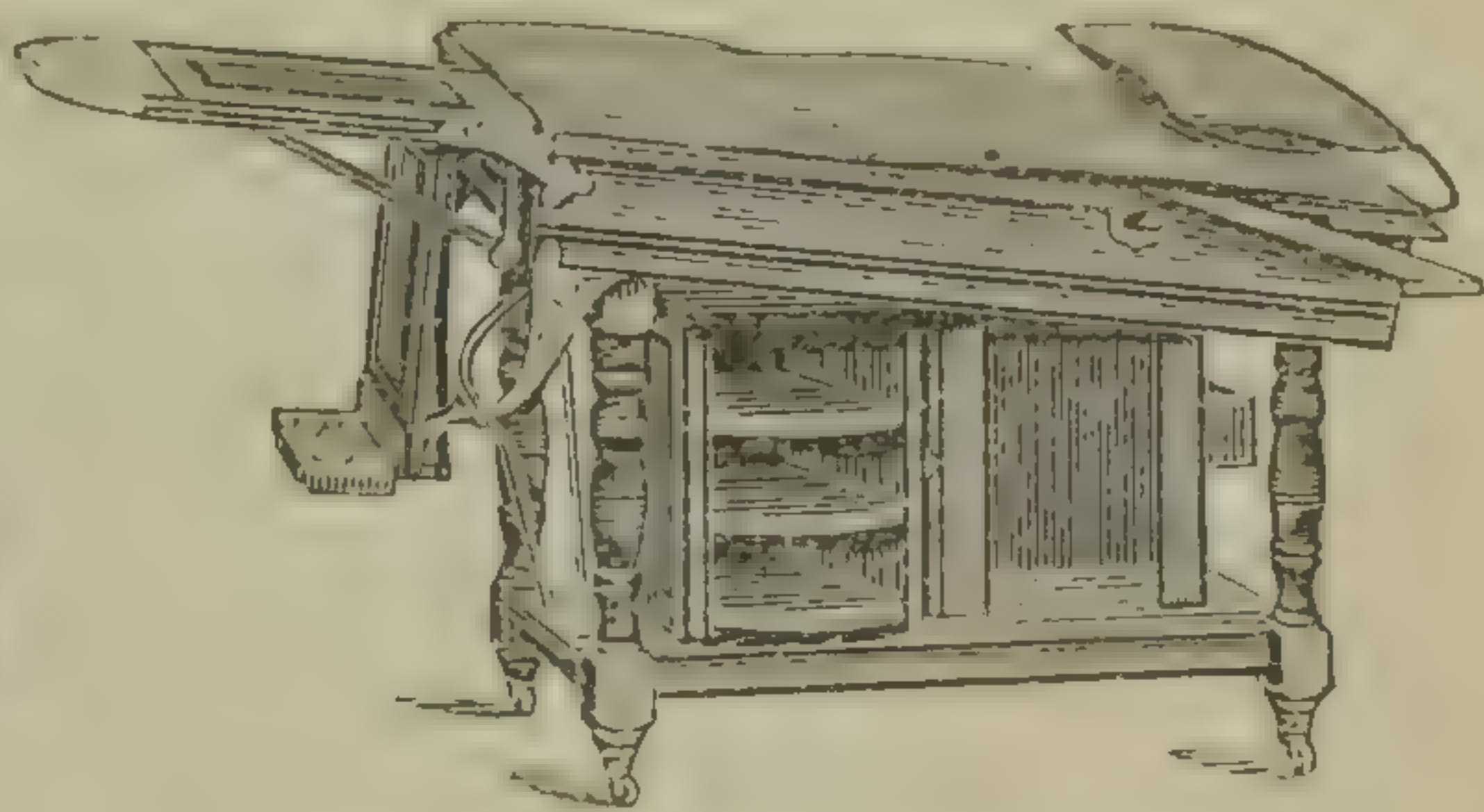


FIG. 3.—EXAMINATION TABLE.

by two thicknesses of blanket, and with two chairs for the feet, makes a good examination table. At the physician's office, one of the many gynecologic tables in use should be at hand. This table should be provided with appliances for allowing the elevation and depression of the shoulders and movable stirrups for the feet. The examination should be made in a good light (north preferred). It is well to have between the table and window and at the right hand of the operator as he sits facing the table, a stand or cabinet containing the appliances, etc., which he will need. Hot and cold water should be near at hand.

POSITION OF THE PATIENT.

It is necessary in the examination of a patient that the various gynecologic positions and their uses should be well understood.

Dorsal Position.—This is the one most generally used for

ordinary gynecologic examinations. The patient lies supine on a flat surface, with head and shoulders slightly raised, the sacrum and soles of the feet being on the same level. The thighs are flexed on the abdomen and the feet supported either on chairs or by the foot-rest on the table, and separated enough to allow the physician to work between. Many applications can be made to the vagina and uterus with the patient in this position.

Modified Dorsal or Lithotomy Position.—The buttocks are brought to the edge of the bed or table and the trunk and head moderately elevated, the thighs being flexed on the pelvis and the legs on the thighs. The legs are held in this position by the use of an apparatus or by assistants. This position is of use in complete examinations, as the abdominal walls are relaxed and an easy introduction of the fingers and speculum permitted.

Dorsosacral Position.—In this, the patient is placed on her back at the edge of a bed or table, the head slightly elevated, the pelvis raised and flexed on the vertebral column in such a way as to present marked obliquity from above downward and from before backward (*Pozzi*). The legs are flexed and carried to the abdomen, being held in place by an apparatus or assistants. If the latter, the legs should be held so that the assistant has one hand free to help the operator. The elevation of the pelvis causes the intestines to fall toward the diaphragm. This position aids by lessening pelvic pressure in examinations, especially of small tumors of the uterine appendages.

Trendelenberg Position.—In order to place a patient in this position, she should lie on a table so arranged that the lower half can be considerably raised, or the lower limbs and pelvis may be elevated on the apparatus designed by Krug, which can be attached to any table. It is considered by many the best position for operations upon the pelvic organs, which are of course made to recede from the pelvic cavity, thereby leaving it open for inspection through the incision.

The upright position is seldom used. Its only advantage is that the examiner can determine the position of the various pelvic organs as they are when the patient is about her daily work. To employ it the patient should lean against some support with the feet separated, while the physician leans on one knee in front of



FIG. 4.—DORSAL POSITION.



FIG. 5.—MODIFIED DORSAL POSITION.



FIG 6 —DORSOSACRAL POSITION, SHOWING APPLICATION OF LEG STRAPS.



FIG. 7.—TRENDELENBERG POSITION.



FIG. 8.—LEFT LATERAL OR SIMS' POSITION.

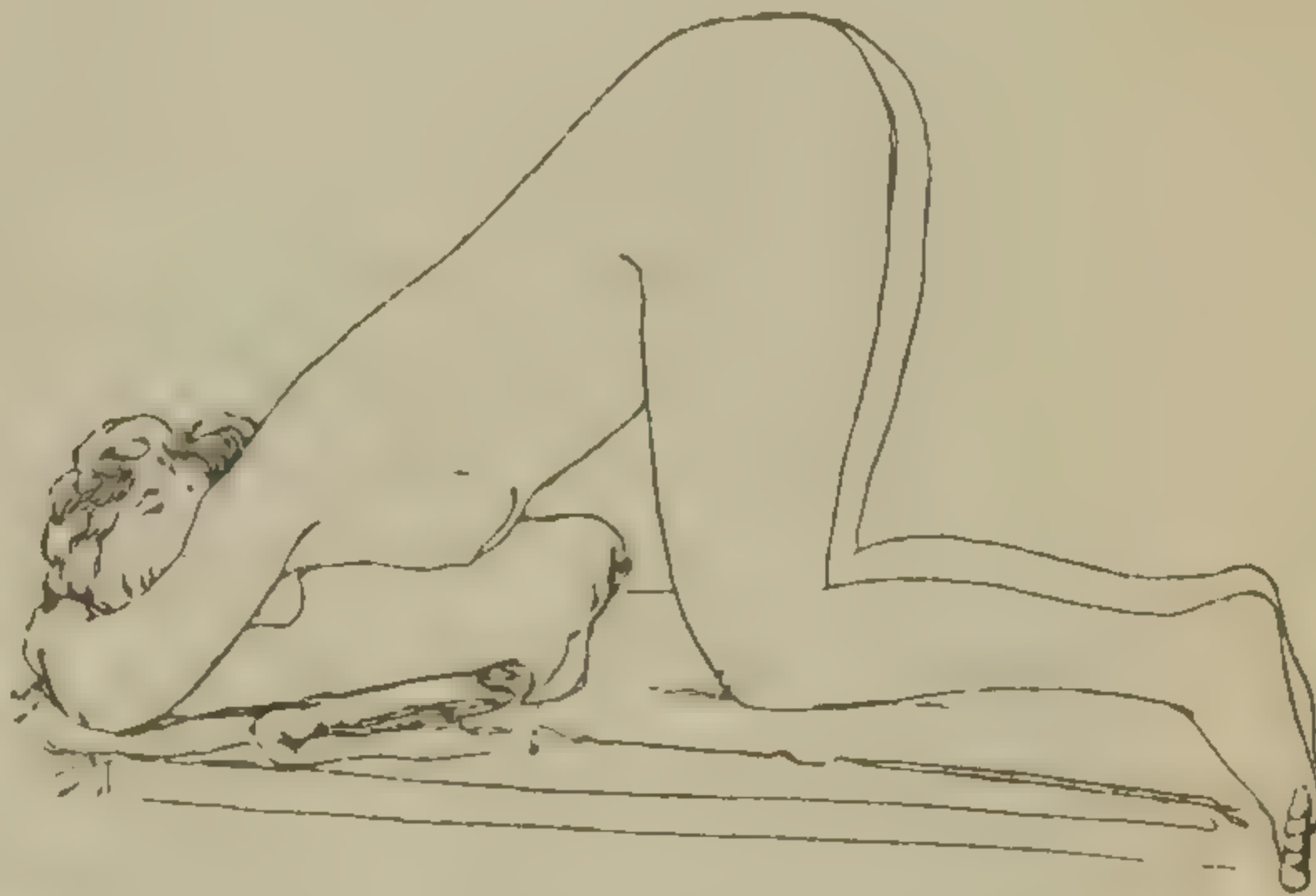


FIG. 9.—GENU-PECTORAL POSITION.

her. The elbow of the hand used in the examination can rest on the horizontal knee.

Left Lateral or Sims' Position.—The patient lies on her left side, her head supported on a low pillow and turned on the left cheek. The hips should be at the left-hand corner of the table. The knees are drawn up toward the chest as far as possible, the right one being drawn somewhat further than the left and forward until the foot touches the table. The left arm is drawn behind the body. The foot of the table should be somewhat higher than the head. This position is particularly adapted for the use of the Sims speculum and for the inspection of the vagina and cervix. It is also very favorable for the tamponment of the vagina and operations on its anterior wall, as well as upon the cervix.

Genu-pectoral Position.—The patient is placed on all fours, the trunk and head depressed so that she rests on her knees and elbows, the nates projecting somewhat over the edge of the table. When air is admitted to the vagina, the uterus sinks away from the vaginal entrance, and becomes more anteflexed. This position is used in the replacement of the retroverted uterus, or for tamponment of the vagina, and occasionally in the replacement of a prolapsed uterus or appendages.

GYNECOLOGIC DIAGNOSIS.

In considering the question of gynecologic diagnosis, it is convenient to divide the subject into non-instrumental methods and investigations in which instruments are employed.

In the first class we have inspection, percussion, and auscultation, palpation of the uterus, vaginal and rectal touch or indigation, and the combined or bimanual method. In the second class instrumental examinations of the vagina, cervix, uterus, rectum and bladder. In almost all cases this latter class is used only as an aid to the first.

Inspection.—This is best practiced with the patient in the dorsal position, the abdomen and other parts to be examined being exposed, all other parts of the body should be covered by a sheet.

We note any deformities in the external development of the

pelvis or skeleton generally, any prominence of the abdominal veins, deposits of pigment; condition of the sebaceous glands or striæ. If the abdomen is enlarged, note whether such enlargement is circumscribed or general, whether it exists on one or both sides. The form, color and shape of the umbilicus and linea alba should attract attention. If any movements are seen on the surface of the abdomen they should be investigated carefully by all the diagnostic means at our command.

The presence or absence of abdominal respiration should be noticed. In this branch of diagnosis we may well include the general inspection of the face and body, such as the ordinary physician would make. Many valuable hints as to the patient's history, habits, deformities, etc., may be obtained in this way.

In the inspection of the external genital organs the patient should be in the dorsal or lithotomy position, a sheet being drawn around the lower limbs, the body well covered and the parts to be examined exposed. The examiner should notice the condition of the external labia and mons veneris, any eruptions, tumors, or cysts that may be present, should see whether the greater lips approximate closely or if they gape apart, their color, and the condition of their external circulation. Notice at the same time if there are hemorrhoids at the anal opening, the condition of the perineum, the presence or absence of rectocele. Anteriorly notice the size of the clitoris, the presence of cystocele, whether eruptions, chancre, chancroids, or mucous patches are present, any increase in the size of the vulvo-vaginal glands, the general condition of the vaginal mucous membrane, and the character of any discharge which may be present.

The ordinary vaginal secretion is thin, of acid reaction and scanty in amount, but when a greenish or yellowish secretion is present, and particularly if the quantity is increased about the urethral orifice and accompanied by some inflammation, it denotes the presence of gonorrhea. In all inflammatory conditions the vaginal mucous membrane changes from a pinkish hue to varying shades of darker red. In pregnancy it is apt to be bluish in color.

Mensuration.—This method is seldom called into play, but may be useful in ascertaining the growth of tumors during given

periods. It is also sometimes used in estimating deformities, and in diagnosing the death of a fetus in utero.

The patient should lie in the dorsal position covered by one thin garment. Any carefully made measure will do, but a metal band graduated in inches and centimeters is the best.

PERCUSSION AND AUSCULTATION.

Percussion.—The patient should lie on her back on a moderately hard surface, with the lower limbs somewhat drawn up. The clothing should be loosened and the abdomen or part to be examined covered only by one thickness of unstarched linen or thin muslin. A clean towel may be used. Percussion is practiced here in the same manner as in any other form of diagnosis, the stroke always being from the wrist. The hand or pleximeter may be used. Where the presence of fluid is suspected, it is well to practice percussion in several positions.

Auscultation.—This is a diagnostic means of great importance and should always be practiced on every case of abdominal enlargement. The patient should lie in the same position as for percussion, but with the limbs straight. The abdomen should be covered only by a soft sheet. It is well to place the ear on the abdomen and auscult methodically the various abdominal segments. After doing this carefully the individual sounds heard can be isolated and more minutely examined by means of a stethoscope. After some practice the sounds denoting pathologic change can be easily recognized from those heard under normal conditions.

Palpation.—The patient is placed in the dorsal position with knees slightly flexed, the bladder and rectum should be empty; she should be asked to breathe with her mouth open. The examiner's hands should not be cold, and it is well to dip them in water as hot as can be borne, which both warms them and increases their sensitiveness; cold hands are apt to excite muscular contractions. The examination should be conducted gradually, as by thus doing the abdomen is accustomed to the manipulations. Massage will sometimes cause an over-sensitive abdomen to relax. It is well to follow a systematic course, palpating first the

hypogastric, then the iliac fossa, to determine changes in the volume or positions of the various pelvic organs.

After thoroughly examining these, the flanks, epigastrium, and hypochondriac regions should be palpated in turn. While practicing palpation of the abdomen the following details must be sought and taken account of, wherever any variation from the typical consistence occurs: Age; multiparity, the abdominal walls being much more flaccid in those who have borne many children; distention of the intestines by gas.

An anesthetic will greatly aid in the accuracy of the practice of palpation, and should always be administered to nervous patients. A tumor, which under ordinary circumstances is apparently attached to the uterus, separates itself clearly when she is under an anesthetic. Certain tumors in hysterical subjects may entirely disappear under similar circumstances. Palpation of the ovaries and tubes without an anesthetic can only exceptionally be done. Meteorism may simulate a tumor or even pregnancy. The condition of rectum; the peculiar doughy consistence of fecal material can be rather easily made out. It should be looked for in the region of the cecum and sigmoid flexure. The distended bladder may be mistaken for a cyst, hence the necessity for catheterization in all cases before an examination. In rare cases the vesical distention may be due to compression upon the urethra or from an affection of the nervous system. A pelvic tumor pressing on the center of the bladder may cause it to become bilobed. The rectus muscles may give the sensation of a tumor; this is especially the case when separation at the linea alba occurs. This muscle may also contract partially between two aponeurotic intersections, thus aiding the resemblance to a tumor. Masses of fatty tissue especially in the region of the flanks. Pozzi states that he has observed masses of fat frequently in the hypogastrium of women affected with chronic disease of the genital organs and in dyspeptics.

Indigation.—For this procedure the dorsal position is the one generally recommended, the patient lying on a hard, firm surface. The vagina should be irrigated thoroughly with an antiseptic fluid both before and after the examination. The patient being ready, the physician sitting beside her should pass one hand with index

finger extended, the thumb extended upward and the other fingers semiflexed, under the sheet along the inside of the thigh until the dorsal surfaces of the fingers touch the perineum or vulva. In the examination it is best to use only the index finger, although this may be reinforced by the one next to it. The thumb should remain extended and is placed obliquely toward the one or the other genitocrural fold, and never in the median line. The remaining fingers are used to depress the perineum. As a rule ocular examination and external manipulation of the part should be left until after the internal examination has been made, exception to this, however, being cases in which great deviation from the normal has taken place. During the internal examination the finger should note all abnormalities in the greater and lesser labia, such as increase or decrease in size, erosions, eruptions, tumors, ulcers or mucous patches, cicatrices of previous labors or showing preexisting disease. Laceration of the fourchet, and obliterated caruncular myrtiformes usually point to a previous pregnancy and delivery near or quite at term. The hymen in virgins usually exists as a crescentic fold of mucous membrane extending across the posterior wall of the vagina at its entrance. Although it is apt to be an obstruction to examination, it is distensible and with caution need not be ruptured; chloroform or cocain being used where the membrane is very sensitive. An unbroken hymen, clearly defined, usually points to virginity. It is generally ruptured during the first sexual intercourse, though in rather rare instances, it has been preserved until the birth of a child. The hymen occasionally forms an obstacle to the excretion of menstrual fluid. Gentle pressure should now be made on the anterior vaginal wall with the examining finger turned palmar side upward in order to determine if any abnormal condition of urethra or bladder exists. The urethra is sometimes used for coition, in which case it is apt to become gradually dilated. It is in and around the mouth of the urethra that the peculiar yellow or greenish yellow pus of gonorrhea is found. Prolapse of the urethra is marked by a small but a complete ring or collar extending around its orifice.

All the parts of the vaginal entrance having been examined, the finger should follow the posterior or lateral wall of the vagina, the

objective point being the cervix, which is generally from two to three inches from the pelvic arch, and lying normally in a line forming a somewhat acute angle with the course taken by the finger. The finger should now be swept around to determine the conditions of the vaginal walls and any disease or abnormalities noted. In proceeding with the examination of the vaginal canal a few points of diagnosis should be borne in mind. Ordinarily in health the vaginal walls are in contact, but in those who have very recently borne children, or are suffering from prolapse of the vaginal walls, the orifice will be found to gape.

The mucous membrane in health is smooth, marked regularly

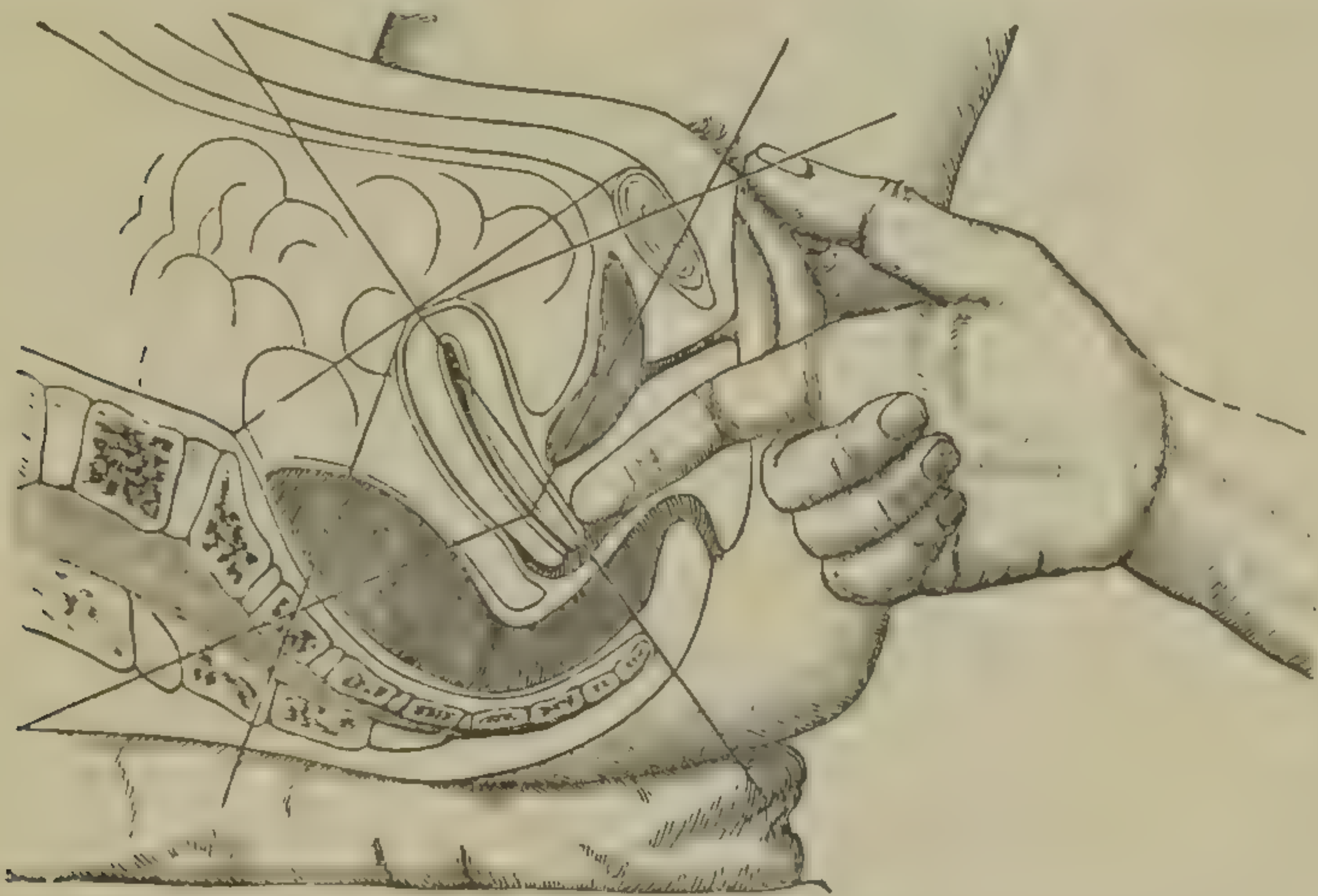


FIG. 10.—DIGITAL EXAMINATION—TOUCHING THE CERVIX.

by transverse ridges or rugæ and covered with a slight secretion, thin in character. When the mucous membrane is eroded, great tenderness exists, or particularly when accompanied by an irritating discharge, it points to rapidly succeeding pregnancies, masturbation, or some form of vaginitis. A rough granular feel of the mucous membrane denotes granular vaginitis. Other pathological conditions, such as cicatricial contraction, may easily be made out. Feces in the rectum can be easily diagnosed by its peculiar doughy, nonelastic feel. Ascending higher, the fornices should be examined. It is not uncommon to find one lateral fornix narrower than the other, so that by pressing upward

laterally, the distance of the pelvic wall will be found to be less on that side, thus rendering lateral displacements more easily detected. Gentle pressure should be made also in front and behind, as well as on each side of the cervix, and in so doing it should be borne in mind that a solid body felt in front of the cervix is generally found to be the fundus of the uterus in a state of anterior displacement or a fibroma, though other tumors are occasionally found in this location.

The same globular tumor in the posterior fornix or Douglas's culdesac is most commonly the fundus of the uterus retrodisplaced.

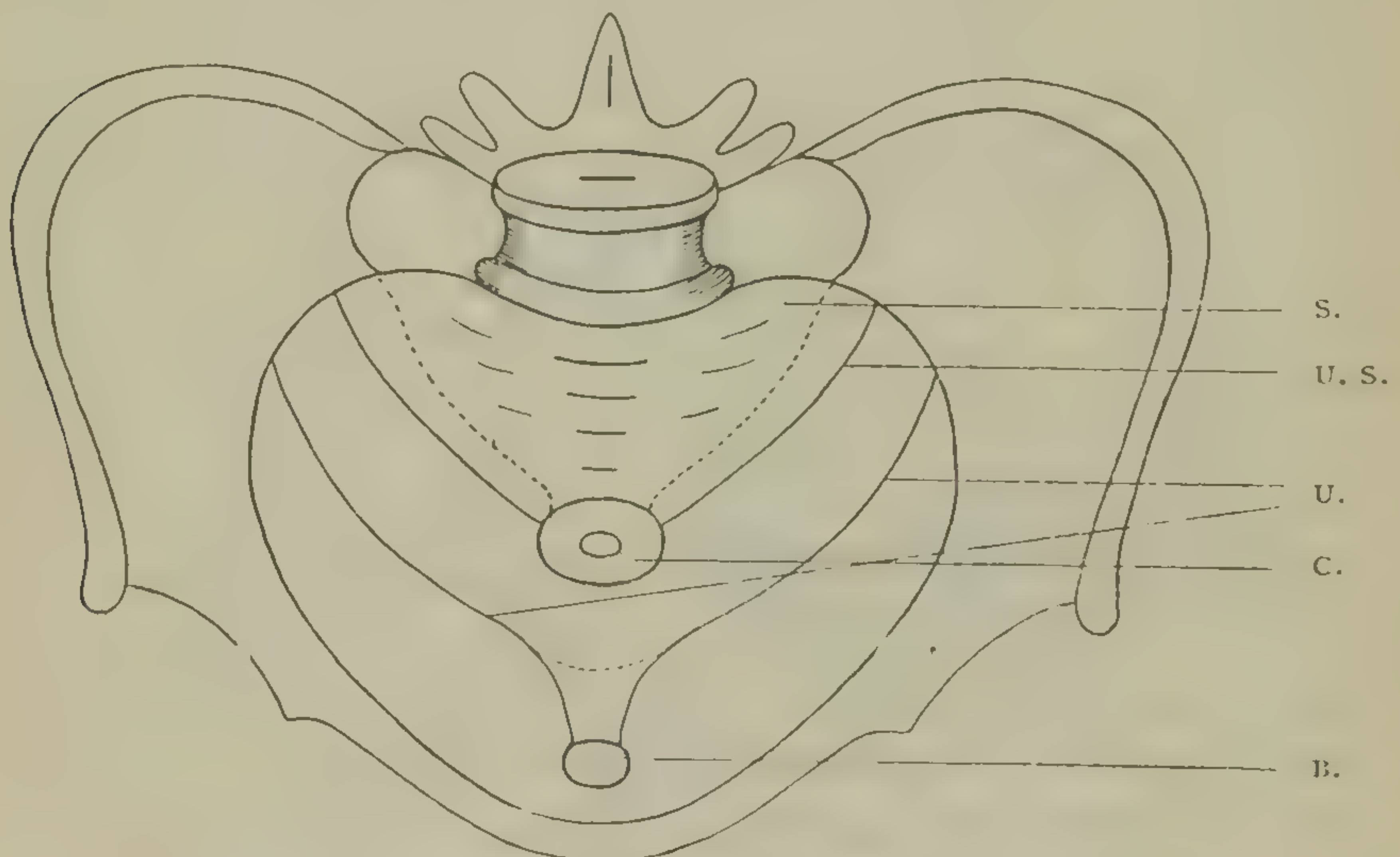


FIG. 11.—DIAGRAM SHOWING POSITION OF THE URETERS.

S. Sacrum. U. S. Uterosacral ligament. U. Ureters. C. Cervix. B. Neck of bladder.

It may, however, be any of the various forms of tumors which find their way into this, the most dependent part of the pelvic cavity. It is necessary to ascertain by the finger the mobility of the uterus.

When the latter cannot be freely moved forward and laterally, it shows that adhesions have taken place from an old peritoneal exudation, thus binding the uterus posteriorly. Such adhesions give some, but not a great amount of pain on examination. By exercising pressure posteriorly and laterally, an enlarged and prolapsed ovary may be caught and pressed against the pelvic

walls. This should be done carefully, or otherwise considerable pain may be caused the patient. It is generally recommended that the right hand should be used in palpating the right side of the pelvis and the left hand for the left side.

Vaginal Palpation of the Ureters.—This is not a matter of great difficulty. The patient should be in the dorsal position. The ureters are situated on the dividing line between the soft elastic connective tissue of the parametrium and the firmer peripheral fatty connective tissue, at the anterior lateral portion of the pelvis. (See Fig. 11.)

The end of the examining finger should be pressed upward anterior to the cervix and drawn toward the pubes. The posterior edge or base of the trigone of the bladder will be felt about half an inch in front of the cervix, after which can be felt the firmer part of the anterior vaginal wall under the trigone. By repeating this maneuver, going a little more to one or the other side each time, the same cordlike edge of the ureter can be traced laterally and backward toward the sacro-iliac joint. During the early months of pregnancy

or when the ureters are diseased, they appear as cords.

Digital Eversion of the Rectum.—Two fingers should be placed in the posterior and lower part of the vagina and hooked, first backward toward the coccyx, then strongly outward toward the anus. By this means the rectal wall may be everted and examined. It is useful to have the thumb and fingers of the other hand push backward the tissue behind the anus. This will in-

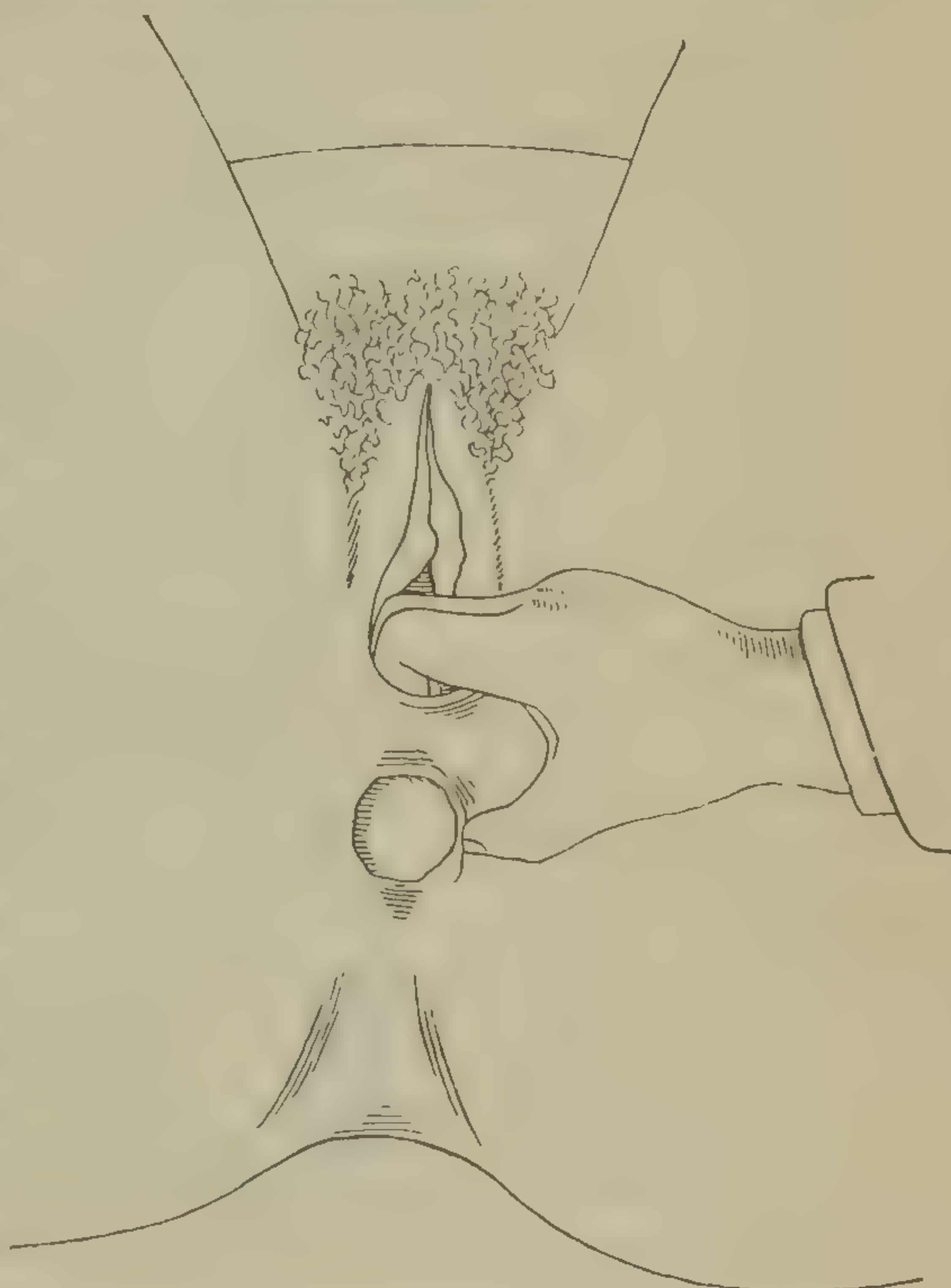


FIG. 12.—DIGITAL EVERSION OF THE RECTUM.

crease the anal distention. This operation is somewhat painful and it is generally well to administer an anesthetic.

Digital Examination by the Rectum.—This is indicated in virgins, particularly those with sensitive hymen, or when the vagina is narrowed. It is of great value in determining conditions existing in the culdesac of Douglas and the nature of tumors on the posterior wall of the uterus.

In performing rectal examination, the forefinger should be smeared with vaselin or other nonirritating unctuous substance and introduced through the anus in a forward direction, the palmar side being down. After the finger end has passed beyond the edge of the levator ani, it may be flexed a little and slowly swept around until its anterior or palmar surface is made to feel the anterior rectal wall. As the finger passes the coccyx it is well to palpate it between the finger internally and the thumb externally, as in this way fracture or other abnormal conditions can be made out. As the finger rotates anteriorly the cervix can be easily felt, and if retroflexion or retroversion has taken place the fundus can be distinctly outlined. Various pathological conditions of Douglas's culdesac, or the posterior uterine wall can be better felt than by the vagina. Rectal examination by introduction of the whole hand is not to be recommended. Where it is necessary to reach the higher parts of the pelvis, the finger is moved along the sacral border until it passes through the constricted part of the rectum and passes behind the uterus, and between and over the uterosacral ligaments.

Bimanual or Combined Method of Examination.—The patient occupies the dorsal or lithotomy position. With the index finger of the right hand, either alone or in company with the second finger, practice vaginal examination, while the left hand presses steadily and gently upon the abdominal wall. Advantage should be taken of each inspiration to press farther downward, until the uterus can be palpated between the two hands. In palpating the ovaries and tubes it is often well to use the right hand for the internal examination of the right side of the pelvis, and the left hand for the left side. The uses of this method of examination are to determine the position of the uterus, and its relation to surrounding organs, the existence of malposition, adhesions, etc., the

exploration of the broad ligaments, and in some cases a misplaced uterus may be put in the proper position or existing adhesions broken up. It is well to conduct an examination somewhat after the following method. Observe the uterus, as to mobility, position, size, shape, sensitiveness, and neoplasms:—

The uterus in a normal state is freely movable. Excessive mobility indicates a probable state of relaxation of the uterine ligaments. Decreased mobility is usually combined with a feeling



FIG. 13.—BIMANUAL PALPATION OF UTERUS—EXPLORATION OF THE POSTERIOR VAGINAL VAULT.

of resistance, the uterus being fixed often posteriorly or to one side. The condition indicates an old inflammatory thickening of the tissues surrounding the uterus, binding it down. It very frequently indicates that the patient has had septic infection following labor.

Position.—Unless some pressure is exercised through the abdominal wall, the body of the uterus in normal position cannot be felt in any of the four fornices of the vagina, but with an empty

bladder, during bimanual examination, the fundus may be included between the two hands in the anterior fornix.

Antedisplacement.—The tumor in the anterior culdesac can be distinctly outlined; this tumor will, by the bimanual method, be found to be continuous with the cervix, which can be felt by the vaginal hand. The diagnosis can be aided by the use of the sound, although many operators are opposed to its use as being dangerous.

Retrodisplacement.—A solid body is felt in the posterior vaginal fornix which is continuous with the cervix. The cervix is nearly or quite in the axis of the vagina, and the pulp of the index finger of the vaginal hand attempts to enter the external os uteri. The fundus cannot be pressed into the anterior culdesac.

Inversion.—The vaginal finger detects a bulbous tumor surrounded by a tense ring or collar, the latter being the dilated cervix. The external hand feels a funnel-shaped depression where the fundus ought to be.

Size.—Normally the unimpregnated uterus is from three to three and a half inches in length. Enlargement would lead the examiner to suspect pregnancy or some of the diseases of the uterine body, to be considered under diseases of the uterus. Decrease in size would probably be caused by senile atrophy or congenital lack of development. In either of these cases, other symptoms, considered under the proper heads, would accompany the condition.

Shape.—The uterus in health and unimpregnated is the shape of a pear flattened considerably in its anteroposterior diameter. In early pregnancy the body assumes a more globular shape and can be felt above the pubic bone at about the third month of gestation. Irregularities in the shape of the uterus, felt especially through the abdominal wall, are probably due to fibroids, malformation, or to ectopic pregnancy.

Sensitiveness.—In the normal state pressure over the abdominal wall carefully done should give practically no pain. When, however, tenderness is present it may be due to a hyperesthetic condition of the abdominal wall itself, as in hysterical subjects; or to rheumatism of the abdominal muscles or peritonitis. Tenderness may also be present in the uterus itself or in the perito-

neum immediately over it (perimetritis), and in these instances it usually points to acute inflammation of that organ (metritis). Sensitiveness at the *side* of the uterus not very marked, combined with increased resistance on pressure, the internal finger not feeling a tumor in the posterior culdesac, is apt to be a symptom of a recent inflammation of the connective tissue about the cervix and vagina (parametritis). The vaginal fornices or culdesacs should normally be smooth, soft and elastic. A tumor in the *anterior culdesac* is usually the uterine fundus in a state of anteversion or flexion. It may, however, be a fibroid of the anterior wall, very rarely an effusion of blood or inflammatory exudate. In the lateral vaults no tumor is ever felt in health. Tumors in this position mark inflammatory deposits or neoplasms on the lateral walls of the uterus, a blood tumor, or frequently when a hard cordlike feeling is present it is an enlarged Fallopian tube. An ovary may rarely prolapse in this locality or very rarely the uterus becomes lateroflexed.

The Posterior Vault is the most common seat of pelvic tumors. A retrodisplaced fundus uteri will be found here; fibroids on the posterior uterine wall, to be distinguished by their irregular outline; inflammatory deposits; hematocele; ovarian cysts in the earlier stages; a misplaced ovary, distinguished by its smooth, slippery feeling and great sensitiveness, and feces in the rectum.

Ovaries and Fallopian Tubes.—These may be recognized by keeping in contact the internal and external hands and gradually pressing downward, keeping as near the uterus as possible and following it from the fundus toward the cervix. By repeating this maneuver, going somewhat further to the side each time, the ovarian ligament will give a cordlike sensation between the two hands. By following this cord slightly further from the uterus, the ovary may be felt as an enlargement, or like a small testicle.

The *Fallopian tubes* normally give no distinct sensation, but when enlarged or when their lumen is occluded, they may become somewhat twisted backward over the ovary. In this condition they form a club-shaped tumor which gradually becomes smaller as it passes toward the uterus.

The *ureters* are less tense to the touch than the ovarian ligament. It is possible to follow them to the sides of the pelvis.

The *Round ligaments* can be but indistinctly felt as loose cords.

Abdominorectal Examination.—This method in many cases is necessary to complete a thorough examination of the uterus and its appendages. To apply this method, the bowels must have recently been thoroughly evacuated. The examining finger, and especially under the finger nails, should be well covered with soap or vaselin.

1st. Insert one or two fingers into the rectum, at the same time

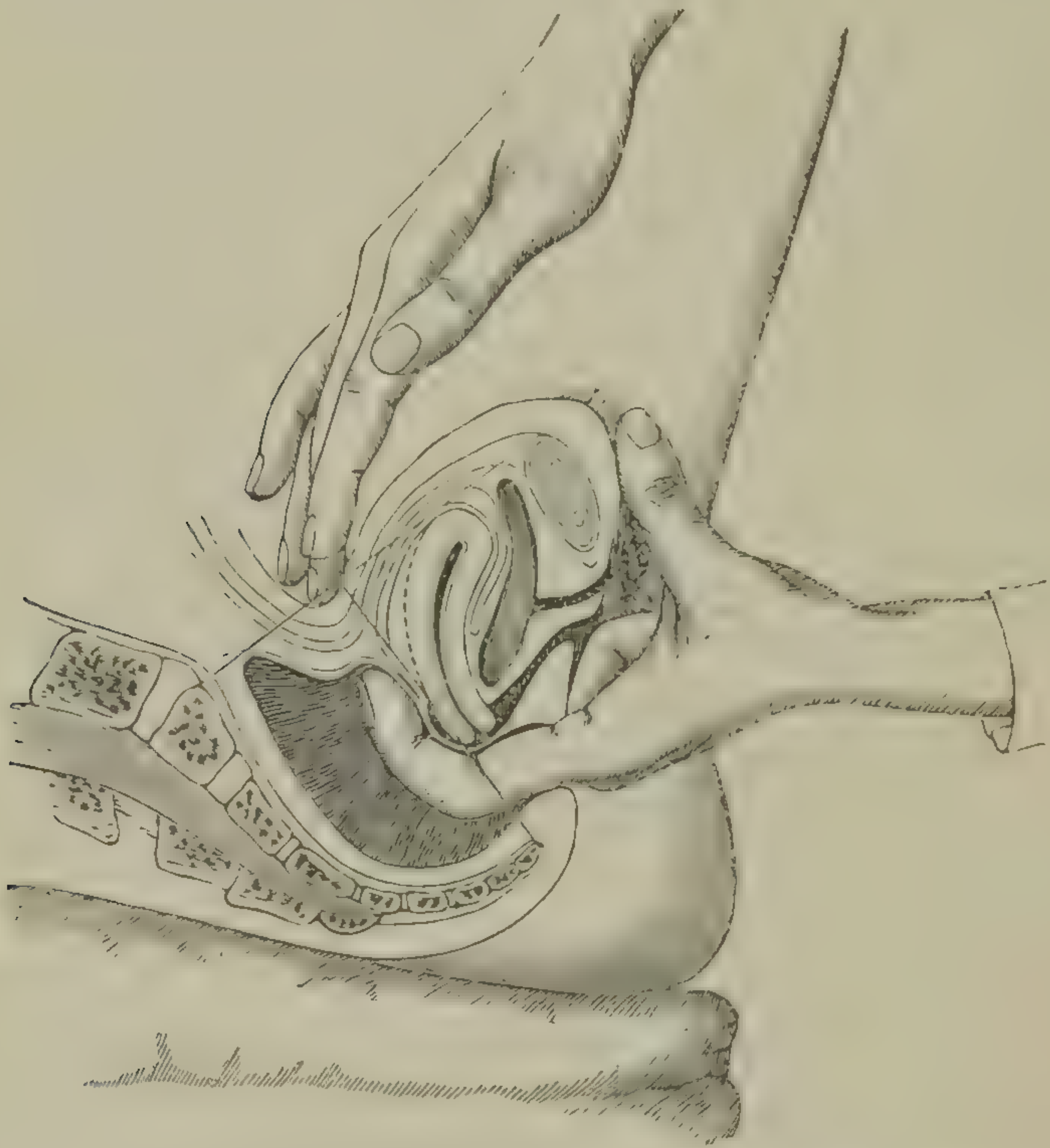


FIG. 14.—BIMANUAL PALPATION; ABDOMINORECTAL METHOD.

making pressure either with the other hand applied over the abdomen, or in the vagina, endeavoring to include the uterus between the two hands.

2d. With a finger in the rectum and thumb in the vagina, grasp the cervix; at the same time the thumb and fingers of the other hand seize the fundus through the abdominal walls. By this means the movability, relations, size, etc., of the uterus can quite easily be made out. It is also possible to replace the uterus

in this way. It is often useful to repeat bimanual examination with the patient in the lateral position.



FIG. 15.—SIMPSON'S SOUND.



FIG. 16.—SIMS' SOUND.

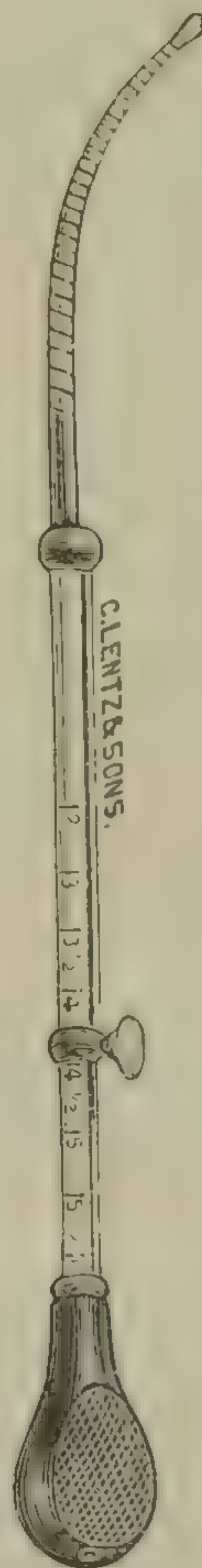


FIG. 17.—JENKS' SOUND.



FIG. 18.—THOMAS' SOUND.

The Sound.—The two sounds in most general use are those of Simpson and Sims. Thomas' whalebone or hard-rubber probe

and Jenks' special sound, while being useful, are too elastic to retain the curve of the uterine canal and are rarely used.

Simpson's sound is 30 cm. ($11\frac{3}{4}$ inches) long, composed of a rod of copper, silver, or nickel plated, and slightly tapering. At the smaller end is a small knob to prevent perforating the uterus, while the larger end expands to form a handle. At a distance of seven cm. (two and one-half inches) from the smaller end a second knob is placed, showing the length of the normal uterine cavity. This sound is now made so as to be easily bent with the fingers. One side of the handle is usually roughened, the sound being bent so that the roughened side will look toward the concavity, thus indicating the position of the point in the uterine canal.

Sims' sound is constructed on the principle of above, but is lighter and more flexible.

Uses of the Sound.

1. To show the capacity of the uterus.
2. Presence or absence of new growths within the uterus.
3. Deviations in the course of the canal.
4. Diagnosis of displacement.
5. Mobility of the uterus.

Dangers and Contraindications.—1. Perforation of the uterine body. This, however, is slight if strict asepsis has been employed.

2. The introduction of septic material within the uterus and a subsequent attack of:

3. Pelvic peritonitis or even general peritonitis.
4. Where malignant disease is present, hemorrhage may be induced.
5. Abortion.

Contraindications.—The sound should never be employed.

1. If the patient has missed one menstrual period by but even a few days.
2. During an acute attack of endometritis.
3. In malignant disease of vagina or uterus.
4. During menstruation.

Preparation for Examination.—When possible it is best to use the sound through a speculum, and when this is done the vaginal culdesacs and cervix should have been well dried with cotton and

washed off with a five per cent. carbolic solution. When no speculum is used, the vagina should be irrigated with a 1 : 2000 solution of bichlorid of mercury. The sound should be well boiled and soaked in five per cent. carbolic acid solution just before its introduction.

Method of Introducing.—The patient is usually placed in the dorsal position.

1st. Locate the cervix with the index finger.

2d. Starting at the second bulb, *i.e.*, seven cm. from the point, bend the sound to a curve of about 45 degrees.

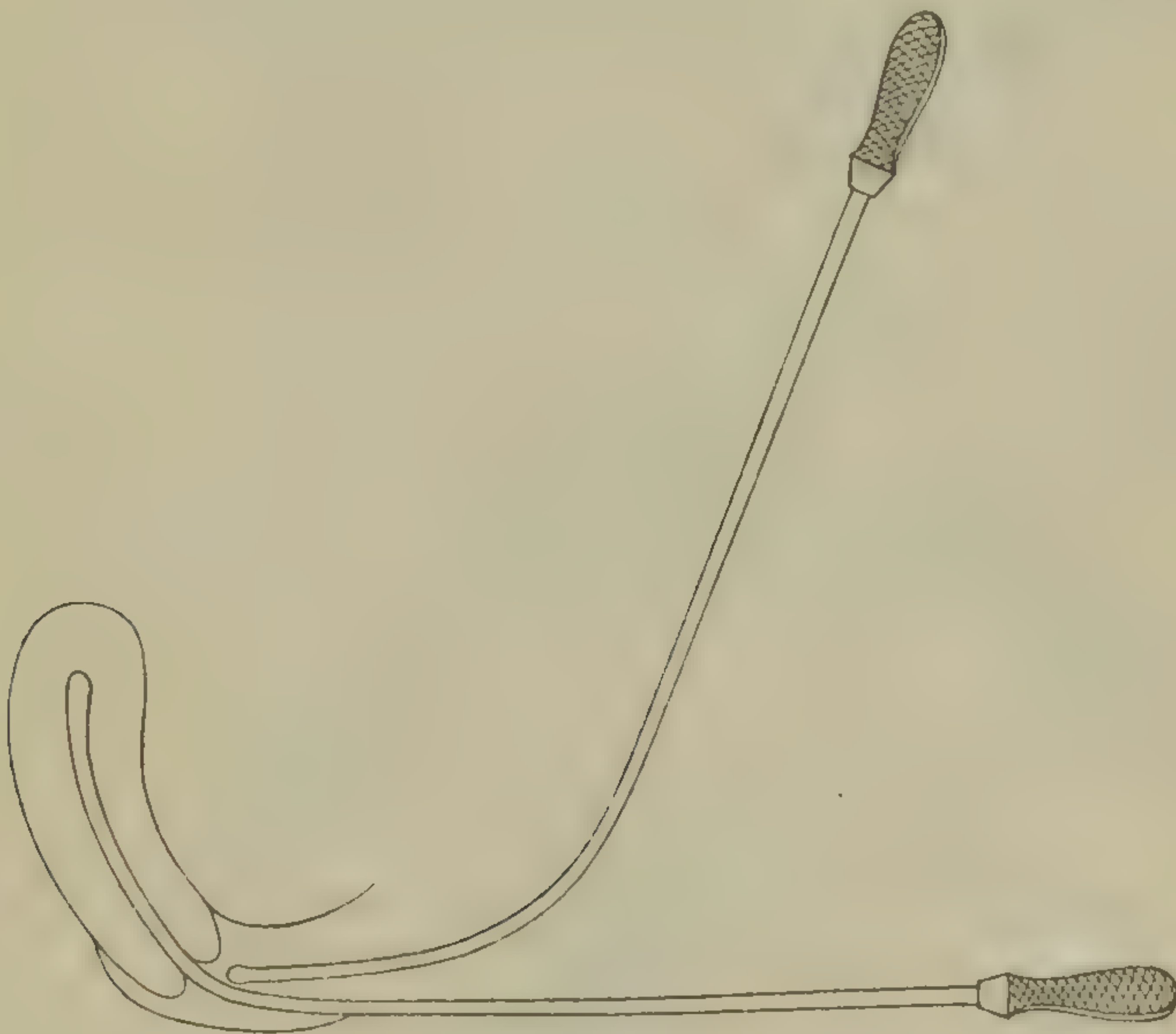


FIG. 19.—INTRODUCTION OF SOUND.

3d. Introduce the sound in the vagina and pass along the palmar side of the index finger, which should guide it into the cervical canal. Occasionally where the fundus is in anteposition the introduction is made easier by starting the sound into the cervical canal with its concavity backward, then when the point has entered, make the handle describe a semicircle from behind, to the left and forward.

4th. Depress the handle, drawing the cervix somewhat forward with the finger, the sound, or a tenaculum.

5th. Use no force. It may be necessary to change the curve of the sound several times.

6th. Sometimes by giving the sound a sharper curve, with a counter curve near the handle, it is enabled to pass an acute flexion in the uterine body.

7th. If much pain is caused, from acute flexion or spasmodic contraction, causing a narrowing of the internal os, withdraw the sound until an examination has been made by the speculum.

8th. When the fundus is posterior it is usual to introduce the sound with the concavity backward, but the introduction may be facilitated by entering the instrument with the concavity forward and causing the handle to describe a semicircle from before backward.

Although by the use of the sound valuable information may be

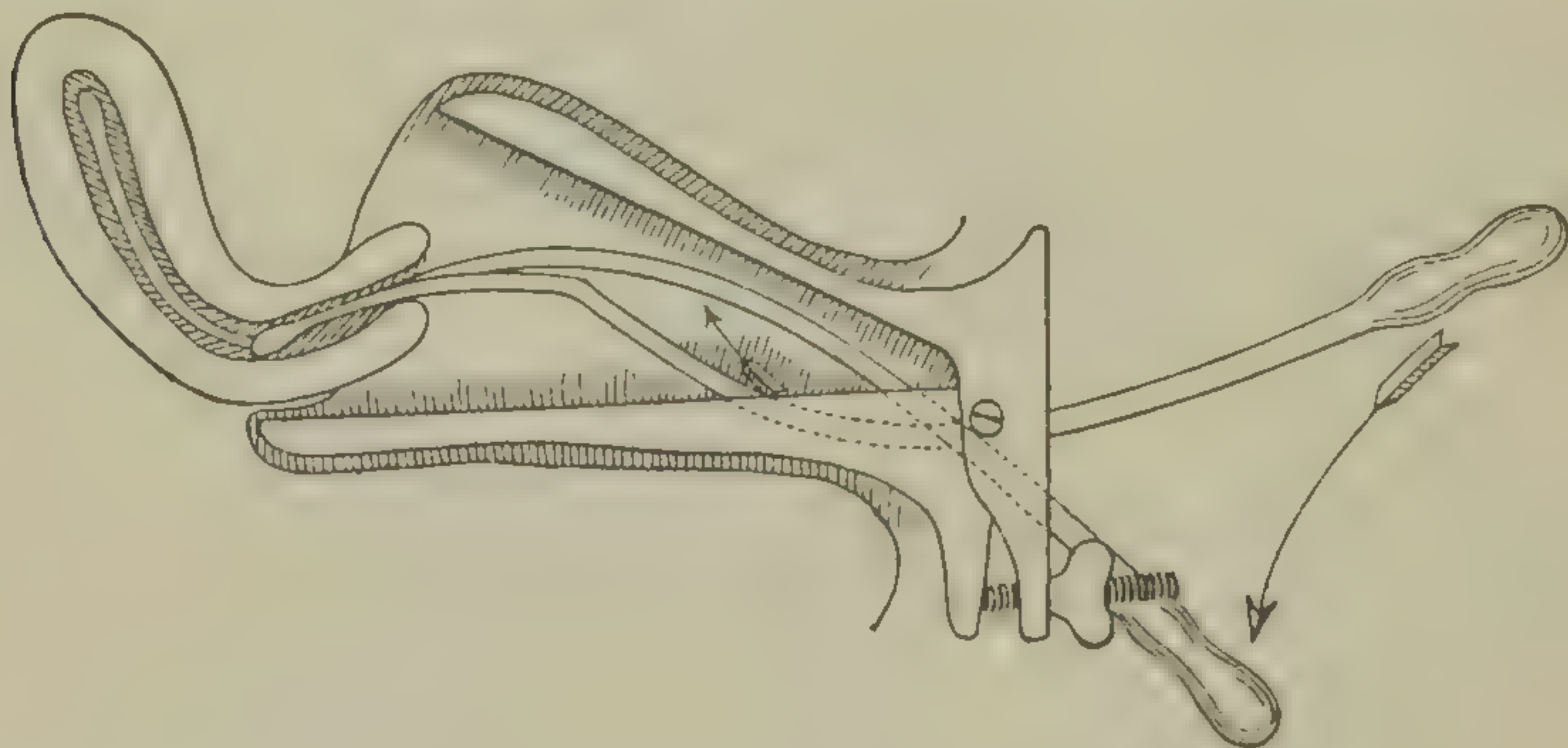


FIG. 20.—INTRODUCTION OF SOUND THROUGH SPECULUM.

obtained, the dangers attending its use are so considerable that it need be but exceptionally used. Other means of diagnosis which we have at our command in nearly all cases will amply supply its place.

Specula.—Specula are divided into cylindrical and valvular. The best representative of the first class was invented by Ferguson, of London. It consists of a glass tube with a bell-shaped external extremity, the end for insertion into the vagina being beveled. The internal surface of the tube is more or less of a mirror to reflect light, while the external surface is coated with rubber and varnished. This form of speculum is not used so much as formerly, but may be useful for topical applications to the

cervix, or to aid in the retention of leeches. Tubular or cylindrical specula should come in sets of at least three sizes, and should run in diameter from one to two and one-half inches. In inserting, the longest part of the beveled end should always go backward. The patient should be in the dorsal position.



FIG. 21.—FERGUSSON'S SPECULUM.

Of valvular specula, all authors agree that the maximum of usefulness is found in the Sims' instrument. This instrument consists of two spoon-shaped blades of different sizes connected by a handle to which they are attached at right angles.

To use this speculum correctly, the patient must always be placed in the Sims' position and the anterior vaginal wall raised by means of a retractor, of which there are many kinds.

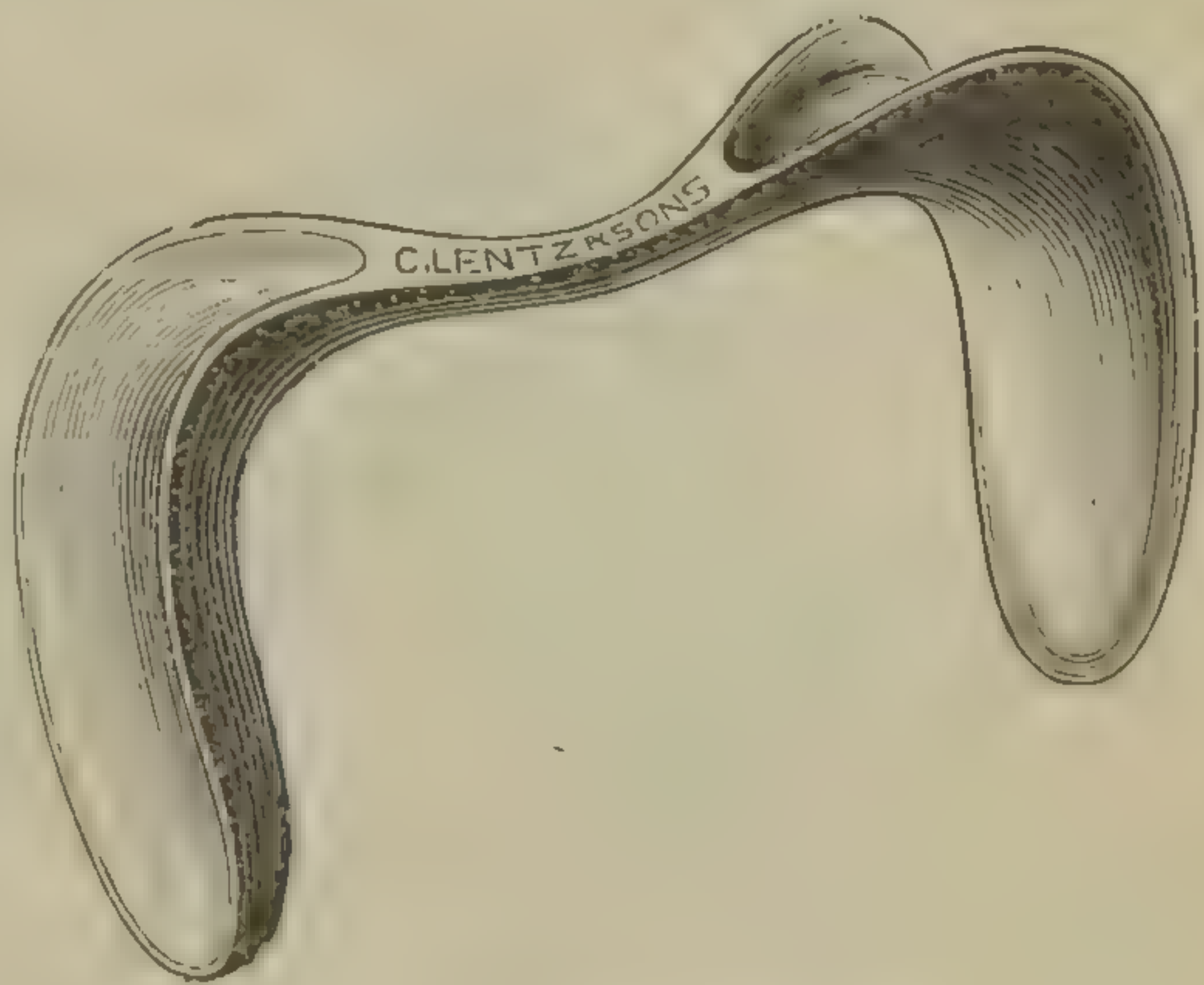


FIG. 22.—SIMS' SPECULUM.

The only disadvantage in the use of the Sims' speculum is, that it is impossible for the operator to hold it and the retractor in position and attend the patient; therefore causing the necessity of one or more extra assistants. Many complicated self-retaining modifications of this instrument have been devised by Emmet, Thomas, T. B. Hunter, Erict, Mundé, and others, which, although more or less useful, have come but little into general use.

Method of Introducing the Sims' Speculum and Retractor.—The

patient should be placed in Sims' position, the clothing loose and raised; she should be covered by a sheet, so arranged as not to expose any part of her except the external genital organs. The speculum is grasped in the right hand with the index finger on the concave side of the blade. It is then passed into the vagina, so

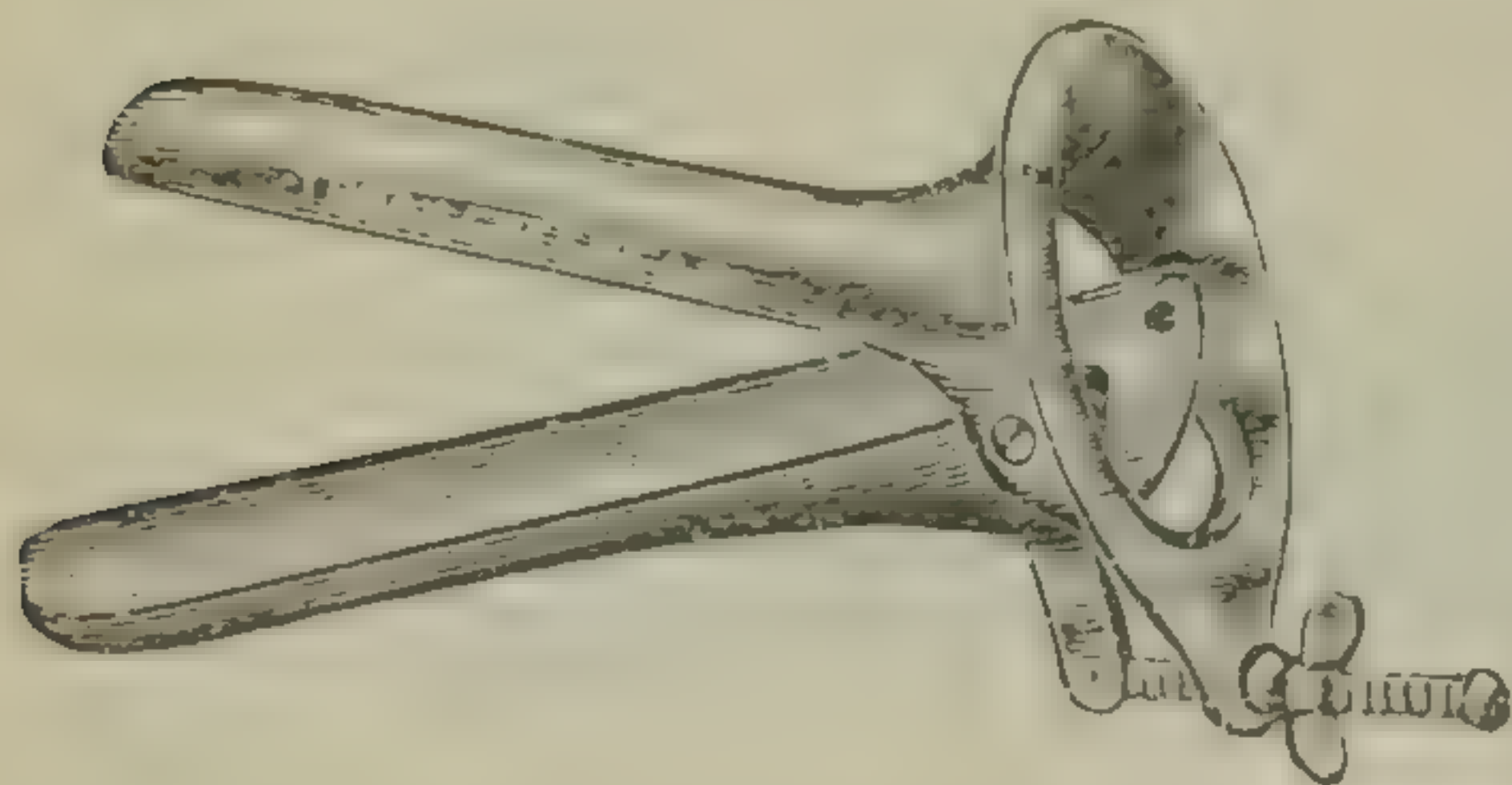


FIG. 23.—HIGBEE'S BIVALVE SPECULUM.

that the convex side and the handle will be toward the sacrum, the labia at the same time being held apart with the left hand. Pass the blade downward and backward toward the hollow of the sacrum, at the same time drawing down the perineum. By this means

the vagina is opened and air admitted, the patient is also in such a position that the abdominal viscera gravitate away from the uterus. The retractor being in place, the handle is given to an assistant, who holds it in his right hand. The assistant's left forearm should rest upon the patient's hip, while the right elbow and forearm are placed against his own body. This gives a firm,

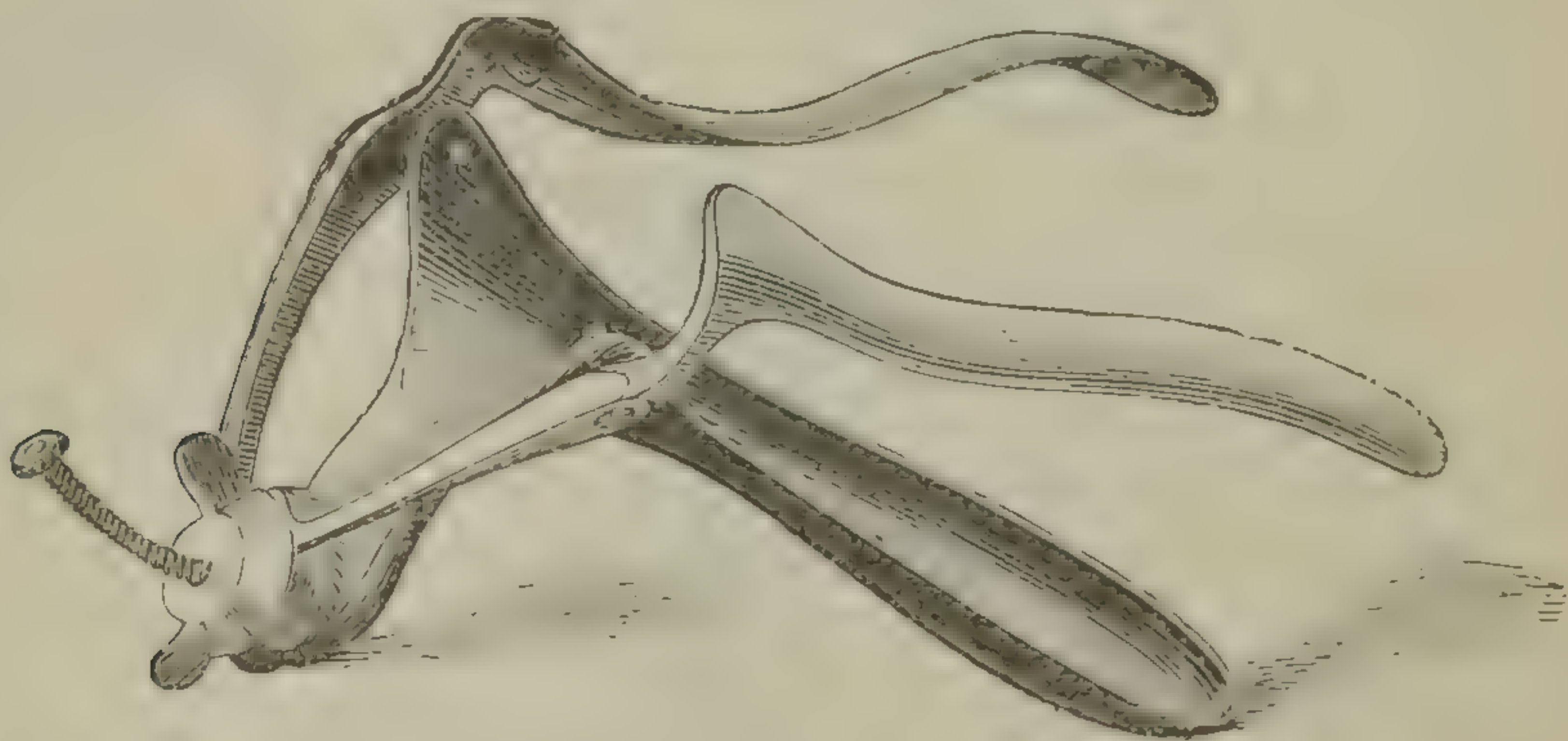


FIG. 24.—TRIVALVE SPECULUM.

steady traction and prevents the assistant from soon becoming weary. The cervix should be seized with a tenaculum or vulsellum forceps and drawn down. By the use of the Sims' speculum, the patient being in the proper position, the os and the cervix can be seen in their normal position, their relations being almost undis-

turbed; operations on the vagina, os and cervix can be best done by this instrument. Occasionally it is necessary to use in addition two lateral retractors to hold the sides of the vagina apart so as to allow more light to enter.

Simon's Speculum.—This instrument is intended to be used with the patient in the dorsal or lithotomy position. It consists of a number of broad retractor blades of different sizes, which can be connected to a common handle by means of a catch. After inserting the speculum, the anterior or lateral vaginal walls are drawn apart by narrow retractors, the cervix being drawn down by a tenaculum.

Specula with Two or more Valves.—Numerous instruments of this class have been invented by Cusco, Ricord, Segnelas, Charriere, Goodell, and others. Among the best may be classed the instruments of Higbee and Goodell. Good trivalve specula have been invented by Nott and Nelson. The advantage of these instruments is that they are more or less self-retaining, thereby dis-



FIG. 25.—SIMS' DEPRESSOR.

pensing with an assistant. Their disadvantages are that several styles and sizes are needed to suit all cases; the vaginal wall often prolapses between the blades, thereby obscuring the view. In removing the instrument small portions of the mucous membrane or hairs may be caught between the blades, causing considerable pain. Operations to the cervix and vagina cannot be done with these instruments.

Method of Introducing the Speculum.—The position of the cervix is first ascertained by digital examination, after which the labia should be held somewhat apart, so that hairs and folds of skin may not be caught between the blades of the speculum as it passes into the vagina. The speculum should enter the vulva with the long diameter of the blades corresponding with the longest diameter of the vulva, that is perpendicular as the patient lies on her back. The blades should be nearly but not quite closed. After entering the vulva, the point of the speculum

should be well inclined downward, thus avoiding the urethra or clitoris. Passing into the vagina, the instrument is turned so that the lower or longer blade lies flat upon the perineum and is thus passed on until it engages under the cervix, which will lie on it. When the cervix is far back, or the vagina very narrow, some authors recommend a long speculum such as Taylor's. In short

vaginæ, instruments such as Talley's have been recommended. The speculum should be removed in the same way as it is entered, the blades not being closed during its exit from the vulva. Most specula with more than one valve are used with the patient in the dorsal position. In inserting specula with more than two valves, follow the same general directions as in the use of the bivalve. All specula must be sterilized carefully before introducing. The various forms of bi- or trivalve instruments should be taken apart and subjected to thorough sterilization, by dry heat, boiling, or by some of the other methods mentioned in the chapter on antiseptics.



FIG. 26.—TENACULA.

Tenacula, Tenacula Forceps, and Vulsella.—In examinations and operations upon the cervix, it is necessary to draw it down so that a better view may be obtained and work upon it may be done more easily. For this purpose it is necessary to use a tenaculum, either plain or in pairs, working on a pivot like scissors, called tenaculum forceps, or a vulsellum forceps, which consists of a pair of tenacula each with two hooks with the shanks joined like a pair of scissors. These instruments may be used either with or without a Sims' speculum. Drawing down the cervix with a tenaculum through a bivalve speculum should never be attempted. To draw down the cervix without a speculum, the first two fingers of the right hand are introduced into the vagina until the anterior lip of the cervix is felt; the tenaculum, tenacula forceps or vulsellum is guided along these fingers and the

anterior lip grasped. In drawing down, care should be taken that the handles of the instrument do not press in the central line of the vulvar orifice, as considerable pain may be caused thereby. With the patient in the Sims' position and with the vaginal retractor,

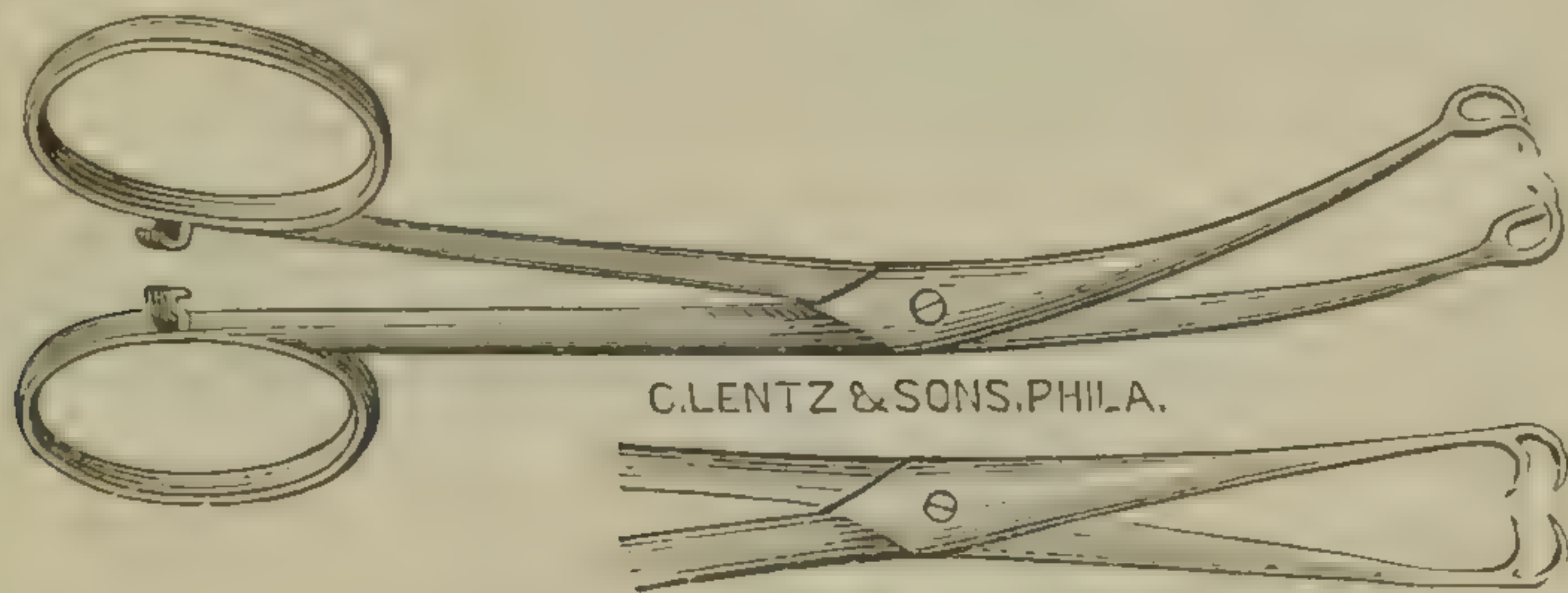


FIG. 27.—VULSELLUM FORCEPS.

the tenaculum or vulsellum may be applied directly to the cervix by sight alone. For the introduction of tampons in the vagina and around the cervix, for packing the uterine cavity with gauze, or for use in placing suppositories within the uterine cavity, a pair of dressing forceps will be found indispensable.

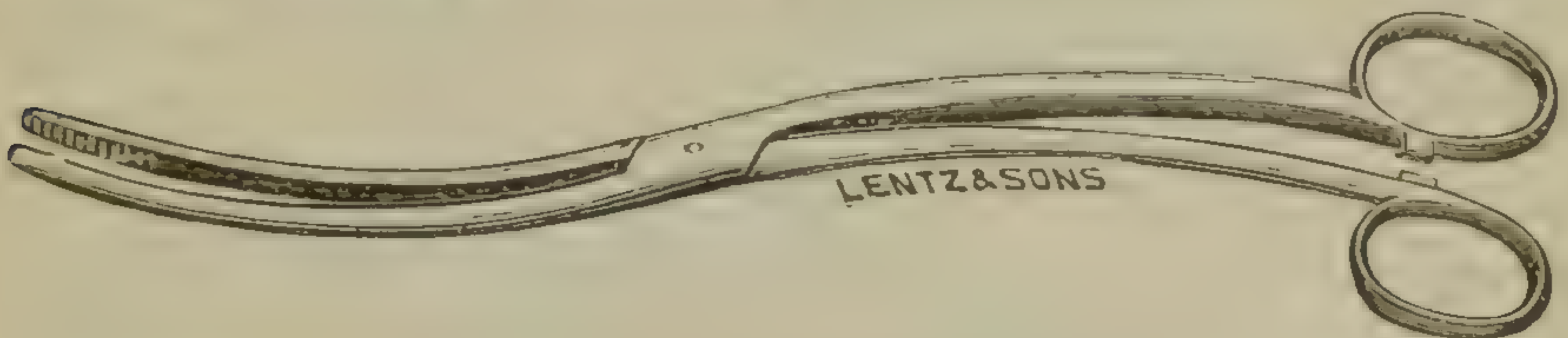


FIG. 28.—UTERINE DRESSING FORCEPS.

Tampons are generally introduced through a speculum and are held in place by the forceps until the latter is withdrawn. *Uterine applicators* are generally made in the form of a small flexible sound without a bulbous extremity. They are composed of silver

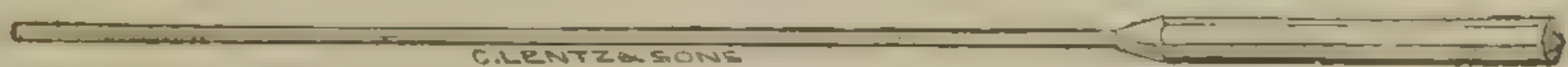


FIG. 29.—APPLICATOR.

or aluminium. In using an applicator, a small piece of cotton is wound around the end of it, then dipped into the desired solution and applied to the uterine surface. Many operators recommend common cotton for this purpose, as it does not so easily ab-

sorb the medicines which may corrode the instruments. For the withdrawal of mucus from the uterus, some gynecologists use a long nozzled syringe. This instrument is made of hard rubber; the nozzle may be bent to the shape of the uterine cavity before introducing, by first greasing and heating over a spirit lamp. The curve can be retained by dipping into cold water.

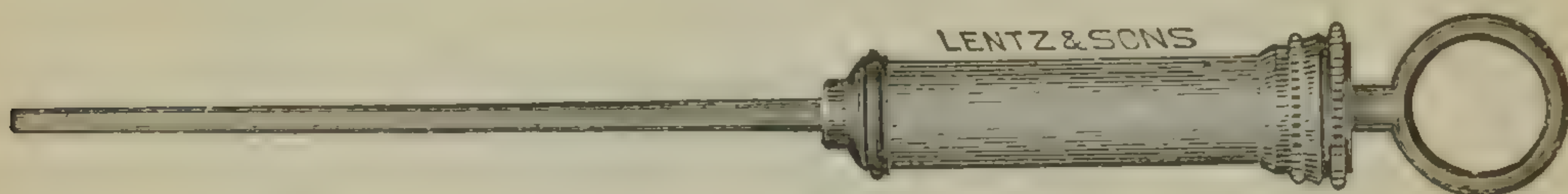


FIG. 30.—UTERINE SYRINGE.

Dilatation of the Cervix.—Dilatation of the cervix for diagnostic purposes may be accomplished—

1. By tents.
2. By solid parallel glove stretchers or dilators.
3. By elastic dilators containing a liquid or air.
4. By operative procedures.

Tents.—These are conical in shape and compressed so as to be easily introduced into the uterine canal. Their dilating power depends on their ability to increase in size by the absorption of

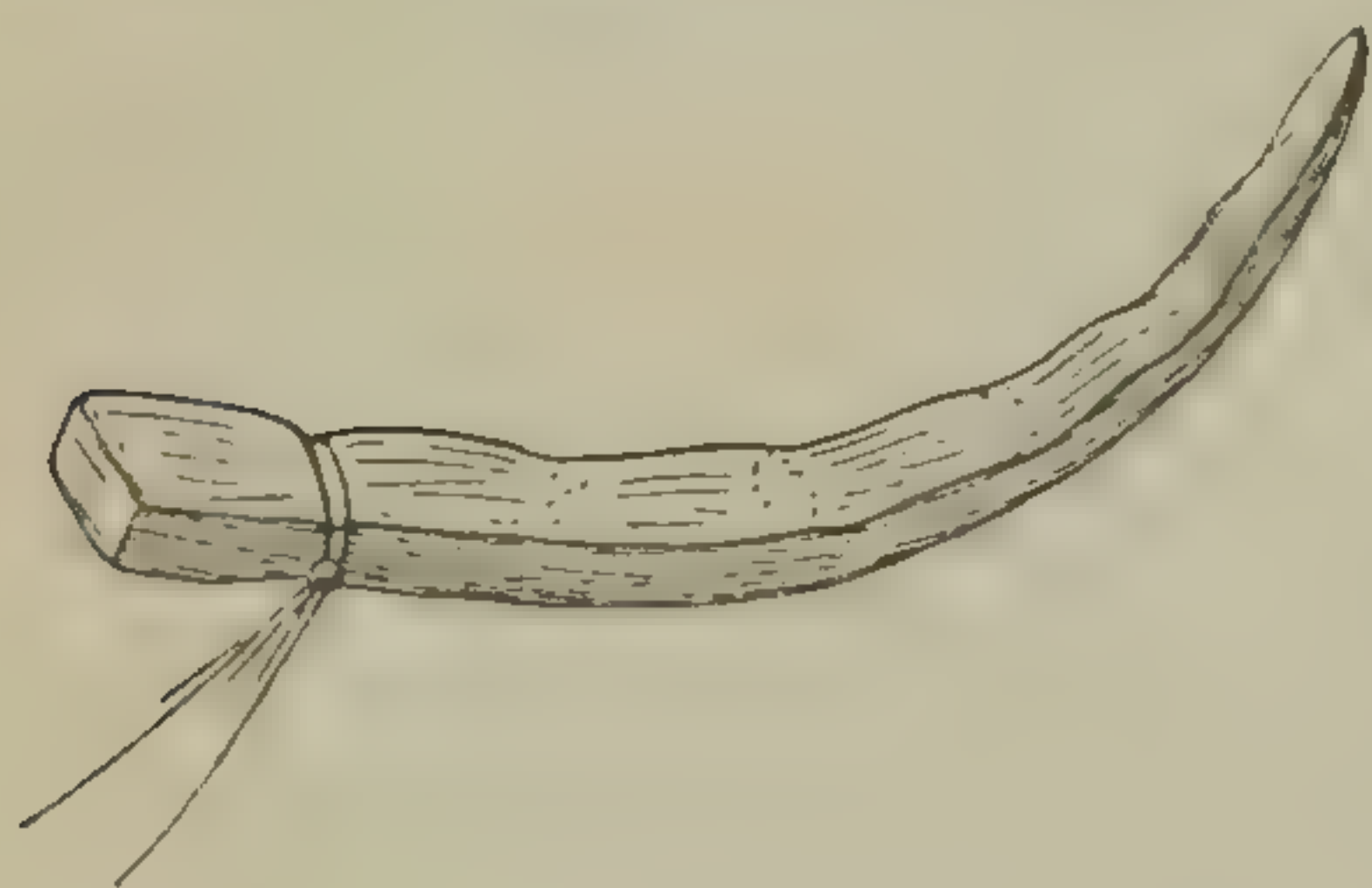


FIG. 31.—SLIPPERY ELM TENT.

liquid. All are more or less to be dreaded because of the danger of the introduction of septic substances by this means. They are very difficult to render aseptic. Tents are composed of sponge, laminaria (sea-tangle), tupelo (*Nyssa aquatilis*), slippery elm, cornstalk, gentian root, etc.

Sponge tents are but little used, as they are the most dangerous of this class of dilators, because of the ease with which they absorb septic matter. They also abrade the mucous membrane and are apt to break during removal, leaving pieces in the uterus. They expand easily.

Laminaria or Sea-tangle Tents.—This is a much less dangerous form of tent than the preceding. It, however, frequently has an uneven expansion, and quite often becomes hour-glass shaped

through compression at the internal os, thus rendering its removal difficult.

Tupelo tents.—This form of tent is much firmer than those before mentioned. It expands more slowly and is more efficient.

Slippery Elm tents.—In cases where the os is very small, a tent may be constructed from a fresh piece of slippery elm bark, soaked in a five per cent., carbolic acid solution and introduced by means of dressing forceps.

Gentian root and cornstalk tents are but seldom used, having but feeble action.

Preliminaries to the Use of Tents.—1. The patient should be placed in the Sims' or dorsosacral position.

2. The position of the uterus must first be accurately known.

3. The patient must have a vaginal douche of bichlorid of mercury 1 : 2000, carbolic acid solution five per cent., creolin 1 ℥ to the quart, or other suitable antiseptics, both before and after the introduction of the tent.

4. Before introduction, the direction of the uterine canal should be ascertained, and the tent bent in the same direction.

5. After introduction, a tampon should be inserted in the vagina to prevent the tent from slipping out of the cervix. A string is usually placed through the outer extremity of the tent to facilitate its withdrawal. In introducing a tent, the instrument is passed through a Sims' or other speculum, by means of dressing forceps, or the instrument known as a tent carrier. The cervix may be drawn down by means of a vulsellum or tenaculum; the tent should always be introduced by sight. Follow by the introduction of a tampon, as before stated. Many authorities recommend the introduction of an opium suppository. The tent should be taken out in from six to twelve hours. In removing it, draw in the direction of the uterine canal and do not rotate. It is well that the patient should remain in bed from twenty-four to thirty-six hours and remain indoors for a few days thereafter.

Dilatation by Solid Bougies and Parallel Dilators.—Solid bougies for dilatation of the cervix have been devised by Peaslee, Hanks, Hegar, Kammerer, and others. Peaslee's and Kammerer's dilators resemble male sounds with a less acute curve and are made of metal. For safety in introduction, a bulb is placed

about two and a half inches from the internal end. Hegar's instruments consist of a series of finely graded hard rubber sounds, the smallest sizes of which are intended to be introduced first and the cervical canal rapidly forced open by increasing the size of the dilator. Hanks' dilator is an S-shaped instrument with a central stem, a handle, and a bougie at each end. They are made of hard rubber or metal and usually come in sets of six. Dilatation may also be effected by means of ordinary male sounds. A strip of iodoform gauze passed into the cervical canal by means of dressing forceps makes in many cases an excellent dilator. It may be left in for four to six hours and repeated if necessary. This method may be used to soften the cervix preparatory to the introduction of metal dilators.

Method of Introducing the Dilators.—The greatest care must

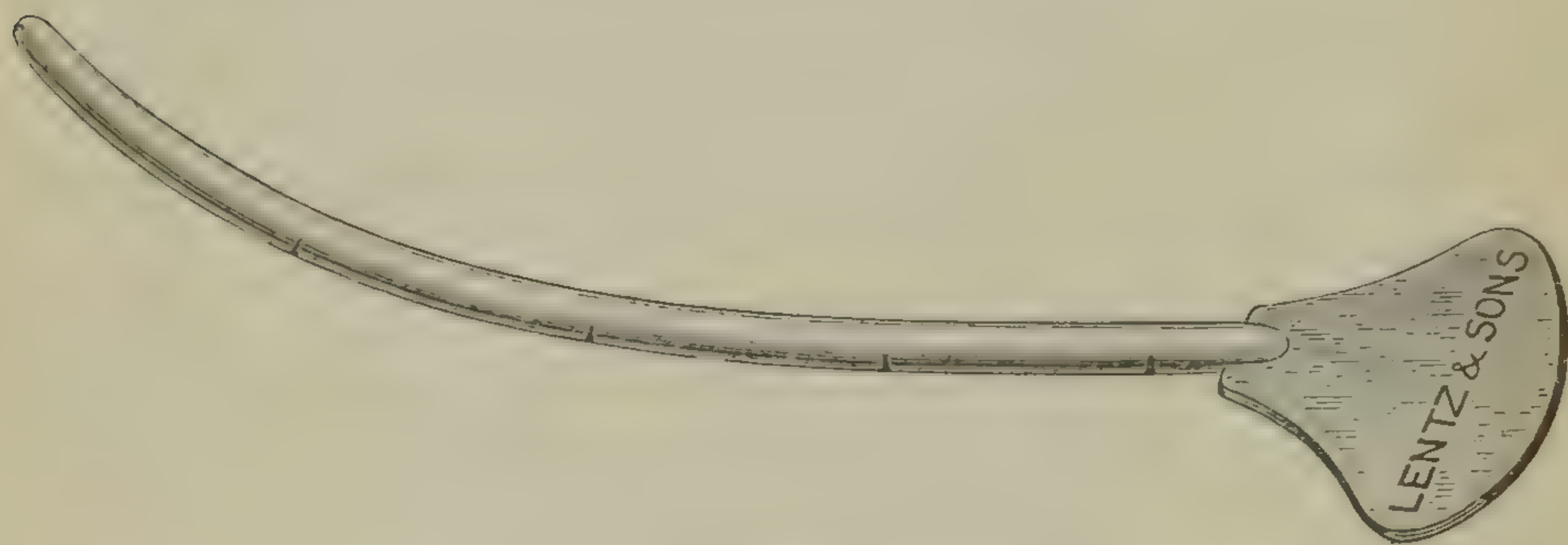


FIG. 32 —HEGAR'S DILATOR.

be exercised to keep the dilators thoroughly aseptic, and with this in view they should be sterilized by boiling and placed in an antiseptic solution before using. The insertion will be made more easy by dipping the instrument in vaselin. Immediately before introducing the dilator, the patient should receive a vaginal douche of some suitable antiseptic. Either Sims' or the dorsosacral position may be used, and the operation will be facilitated by the drawing back of the perineum with a Sims' speculum or retractor. Seize and steady the cervix with a retractor and introduce the dilator by sight in the same manner as a uterine sound. Always introduce the smallest size dilator first and increase the size until the largest will easily pass in. Some authorities recommend the insufflation of iodoform against the cervix and the filling of the

vagina with iodoform gauze. The patient may remain in bed for a short time after the dilatation. Rapid dilatation of the cervix can be quickly accomplished by means of parallel-bladed instru-



FIG. 33.—ELLINGER'S DILATOR.

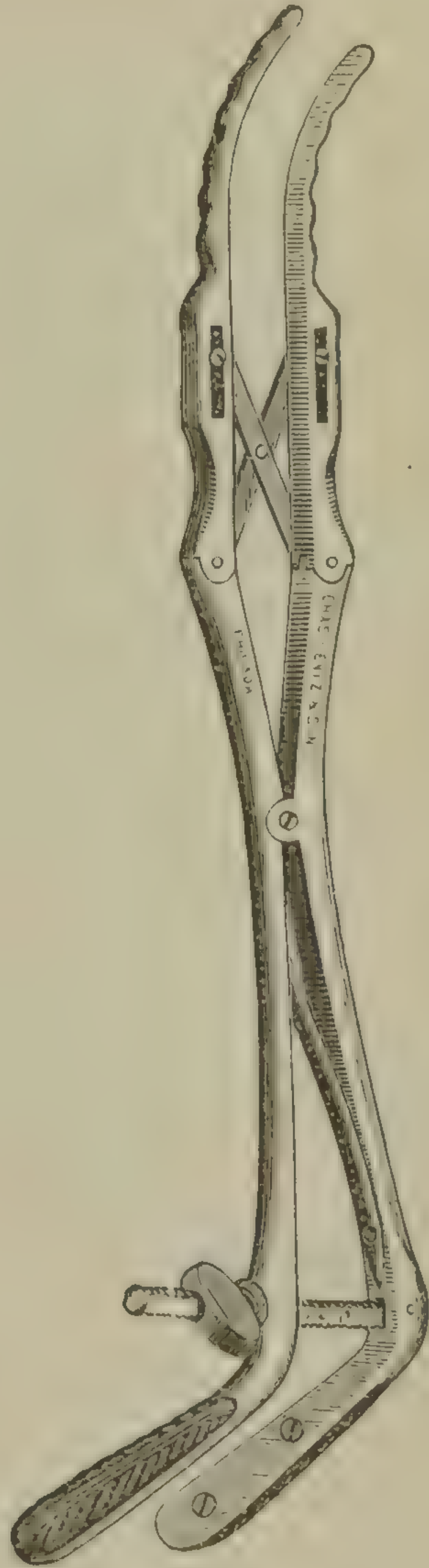


FIG. 34 —GOODELL'S DILATOR, HEAVY.

ments, such as Nott's, Ellinger's and Goodell's. Dilatation with these instruments may be carried to a greater extent than by

those before mentioned. It should rarely, however, exceed one inch.

Method of Introducing.—The same preliminaries, both as regards the preparation of the instrument and patient obtain where the bladed dilator is used as in the preparation for the preceding class. The patient is usually placed in the dorsal position and should be under an anesthetic. Draw down the perineum with a Simon's or Sims' speculum, the vagina and cervix previously having been flushed out thoroughly with an antiseptic fluid; the cervix should be steadied with a tenaculum or vulsellum forceps. It is best to first begin the dilatation with the instrument of Ellinger or Nott, either of which is smaller than the heavy dilator of Goodell.

Insert the dilator with closed blades, being careful that it does not slip and lacerate the cervix. The handles should be slowly and steadily brought together. When dilatation has sufficiently advanced, the large instrument of Goodell may be brought into use if it is desired to still more enlarge the cervical canal. Parallel dilators are so constructed that the expansion is lateral, but it is best usually to carefully rotate the dilator so that the expansion shall be made uniformly in the other diameters.

It is sometimes necessary to repeat the application of the dilators before the cervical canal is sufficiently enlarged to admit the finger or a curette for diagnostic purposes.

Elastic Dilators.—For this purpose, Barnes' bags are the means most usually employed. They are more used however, in obstetric work than in gynecology. They consist of a number of India-rubber bags, varying in size, in shape somewhat like a violin, and are intended to be inserted empty within the external os and gradually filled with air or water, by means of a force syringe; water



FIG. 35.—BARNES' BAG.

containing some antiseptic being employed generally to fill them. As soon as the cervix has dilated to a sufficient size to admit of a bag being easily withdrawn, a larger one is inserted. Another dilator of the same pattern but containing two chambers for fluid has been devised by McLean.

A certain amount of dilatation is necessary before a Barnes bag

can be inserted. In dilating the cervix by this means, the patient should receive a vaginal douche of some antiseptic, be placed in the dorsal position and the bag passed into the cervix by inserting the index finger into the little pocket on its side, or by simply rolling it up on its long axis. When firmly inserted an antiseptic fluid should be slowly pumped in with a piston or Davidson's syringe, a pair of hemostatic forceps being used to prevent the return flow of the fluid. From one to three hours will be required for each size of bag to dilate sufficiently to allow of its easy withdrawal. Instruments more or less resembling the above have been devised by Allen, Emmet and others. Dilatation by means of hydrostatic bags is generally evenly and safely accomplished, resembling considerably the true physiological way; a great extent of dilatation can be had also by their means, with comparatively little danger of laceration of the cervix.

Dilatation by Operative Means.—In some cases it may be necessary to split the cervix on either side as high as the vaginal junction. For this purpose scissors are used, the incision being deepened with a probe-pointed bistoury. The incision should be closed up by sutures immediately after examination. This form of dilatation is considered dangerous by most operators and is seldom used.

The Curette.—Among the most useful instruments for removing small portions of various



FIG. 36.—WIRE-LOOP CURETTES.

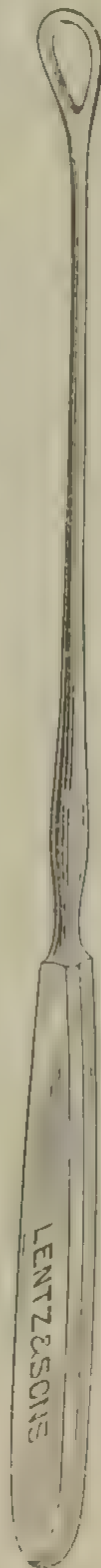


FIG. 37.—SHARP CURETTE.



FIG. 38.—DULL-EDGED DOUCHE CURETTE.

intrauterine growths for diagnosis and for the treatment of diseased conditions of the endometrium, must be mentioned the curette. Curettes may be classed under two heads, dull and sharp, and consist of a blade made either of a loop of wire sharpened on one side or of a spoon-shaped blade connected with a long stem and handle. Among those commonly used may be mentioned the instruments devised by Sims, Recamier, Thomas, a wire loop which is flexible and dull, Simon's spoon curette, and the dull douche curette of Carl Braun.

In using the curette, the strictest asepsis must be observed in the preparation of the patient and instrument. The particular uses of various curettes will be treated in the chapters on diseases of the uterus.

The dangers which may arise from the curette are ; perforation of the uterus, peritonitis, particularly after the use of the sharp instrument, inflammation of the uterus and connections, atresia of the uterine canal, hemorrhage, which may even occur some hours after the operation, and sepsis.

THE EXTERNAL GENITALIA.

The external organs of generation in the female, generally known as "vulva" or "pudendum," are the mons veneris, labia majora and minora, fourchette or posterior commissure, and fossa navicularis, the hymen, vestibule, and the clitoris with its prepuce. To these may be added the orifice of the vagina and urethra.

The Mons Veneris is a cushion of fatty tissue surmounting the symphysis pubis. After puberty this as well as the labia majora are covered with hair.

The Labia Majora, analogous to the scrotum in the male, are two thick folds of skin, extending from the mons veneris in front to the perineum behind, forming an elliptical fissure which encloses the urinovaginal opening.

Each labium has an outer and inner surface ; externally it is

continuous with the integument, and internally with the mucous membrane of the vagina. Like the mons veneris its structure is fat and areolar tissue and a tissue resembling the dartos of the scrotum, also vessels and nerves.

Labia Minora or Nymphæ are folds of mucocutaneous tissue within each labia majora; anteriorly they converge and form the preputium clitoridis; from this they extend obliquely downward and outward to about the middle of the vaginal orifice, where they blend with the labia majora.

Clitoris.—Analogous to the penis in the male, but differing in that it has no corpus spongiosum and no urethra. It is situated in the median line between the labia minora, by which it is partly hidden from view. It consists of spongy erectile tissue, and is extremely sensitive. Like the penis it arises from the rami of ischia and pubis by a crus on each side, also it has a suspensory ligament and two small muscles—the erectors clitoridis.

Vestibule.—Immediately above the vaginal opening and within the labia minora is a smooth triangular surface of mucous membrane; at the apex of this space is the clitoris, at its base the meatus urinarius, about an inch below it, near the margin of the vagina. Its lateral boundaries are the labia minora. The ducts of several small mucous glands open on the margin of the vestibule.

Hymen, consists of a thin fold of mucous membrane guarding



FIG. 39.—EXTERNAL GENITALIA OF FEMALE.

- | | |
|---------------------------------------|--|
| 1. Labium majus of right side | 2. Fourchet. |
| 3. Labium minus. | 4. Clitoris. |
| 5. Urethral orifice. | 6. Vestibule. |
| 7. Orifice of the vagina. | 8. Hymen. |
| 9. Orifice of the vulvovaginal gland. | 10. Anterior commissure of the labia majora. |
| 11. Orifice of the anus. | |

the vaginal opening. It may be absent altogether or exist in different forms, viz. :—

1. A mere marginal fringe—H. fimbriatus.
2. With a central aperture—H. annularis.
3. A number of openings—H. cribriformis.
4. Complete closure—Imperforate hymen.

It may persist after copulation, hence it is not a sign of virginity, as sometimes stated.

Carunculæ Myrtiformes, are little elevations of mucous membrane around the orifice of the vagina. Schroeder maintains that they are produced by childbearing, and not by a simple tearing of the hymen.

Fourchet, is a thin, transverse fold of mucous membrane within the posterior commissure; during the first parturition it is usually torn.

The space between the fourchet and the posterior commissure, which is only noticed when the former is pulled down, is the **fossa navicularis**.

Glands.—1. The sebaceous glands are very abundant on the nymphæ; they secrete a yellowish fluid which has a peculiar odor.

2. Mucous: (*a*), glands around the meatus, mentioned above. (*b*), Bartholini (vulvovaginal glands); are two compound racemose glands situated one on each side just posterior to the lower extremities of the bulbs of the vagina. Each gland has a duct about half an inch long which opens in front of the hymen on each side. They secrete a glairy mucus.

Bulbs of vagina are small masses of erectile tissue about the size of an almond, lying under the mucous membrane on each side of the vagina. Each bulb projects anteriorly and unites with its fellow on the opposite side.

Relations of the External Genital Organs.—When the woman is standing only the mons veneris can be seen. The labia majora and minora are in close apposition and are in a horizontal plane. The whole external position of the vulva is covered with hair after puberty.

Vessels and Nerves.—

Arteries.—Branches of the external and internal pudics and epigastrics.

Veins.—Accompanying veins of the above named arteries.

Lymphatics.—The lymphatic vessels of the vulva terminate in the superficial set of the inguinal glands.

Nerves.—The integument of the labia is supplied by the ilioinguinal, while the perineum and the deeper structures of the vulva are supplied by branches of the pudic.

DISEASES OF THE EXTERNAL GENITAL ORGANS.

VULVITIS.—(INFLAMMATION OF THE VULVA.)

Varieties.—1. Simple catarrhal, acute or chronic. 2. Gonorrheal. 3. Phlegmonous. 4. Diphtheric. 5. Gangrenous. 6. Diabetic.

CATARRHAL VULVITIS.

Causes.—Lack of cleanliness, irritating discharges from vagina or cervix, friction from dress or injuries to the parts, struma, masturbation, pregnancy, coition, parasites, foreign bodies, fevers, etc.

Symptoms.—Those usually found in other forms of catarrhal inflammation, some general discomfort, swelling, burning pain on passing urine, local increase of temperature. Secretion is first arrested, the parts becoming dry, then increased, and the parts are excoriated with a discharge of glairy mucus. The inflammation may even involve the urethra.

Treatment.—Cleanliness the first consideration. Warm hip baths should be given with applications of lead water and laudanum, if seen early. If the case has progressed beyond the early stages, dust the vulva (after it has been thoroughly cleansed) with starch, starch and calomel, bismuth, or borax powder. Lead water and laudanum should also be applied, by soaking cotton or lint and placing between the labia; ichthyol, 5 to 10 parts to 100 of glycerin, applied on a tampon. If the irritation is caused by worms, such as the ascarides, it is well to use rectal injections of infusion of quassia \mathfrak{z} ij to the pint of water. Keep the bowels open with salines.

CHRONIC CATARRHAL VULVITIS.

This form is usually found in strumous children.

Treatment.—Life in open air, cod-liver oil by inunction or mouth, syrup of the iodid of iron, and Fowler's solution.

Locally, nitrate of silver, grs. iv to $\bar{3}$ j applied to the vulva; lead water and laudanum, and powders applied as above; irrigations of creolin, $\bar{3}$ j to the quart, have been recommended.

GONORRHEAL VULVITIS.

Causes.—Always arises from entrance of gonorrheal poison, either by sexual intercourse with one having the disease, or by the poison being carried on instruments previously used on a case of gonorrhea, or by the hands of a physician similarly uncleansed.

Symptoms.—This form of inflammation of the vulva begins with a higher temperature, more swelling and pain than in the simple form of the disease; there is also great pain in passing urine. The urethra is extremely apt to become involved. The discharge becomes purulent and yellow or greenish in color. Gonococci will often be found.

The **diagnosis** can be made on the character of the discharge, the more severe onset of the disease, and the presence of the gonococcus of Neisser.

Treatment.—Put the patient to bed and order a light diet. Open the bowels by salines and calomel in divided doses. Forbid alcohol in any form. Use the following:—

R.	Unguent. cucumis,	$\bar{3}$ j	
	Alum,	$\bar{3}$ j	
	Tannin,	$\bar{3}$ ij.	M.

SIG.—Smear a small quantity on a pledget of cotton and place in the vagina at night. Remove in the morning and use injection of decoct. quercus alb., one pint, sodii boratis half an ounce (*Horwitz*, "Compend of Surgery"). Injections of bichlorid of mercury 1 : 1000 or 2000 or, better, creolin, $\bar{3}$ j to the pint.

Ichthyol applied on tampons of cotton have been recommended by some. If pain is great, lead water and laudanum may be applied on cotton or gauze.

PHLEGMONOUS VULVITIS.

Causes.—Same as in other forms except that traumatism plays

a more important part in the causation. The seat of the affection is usually the labia majora.

Symptoms.—Same as in other forms, the pain being increased by walking or standing. The congestion and swelling often lead to the breaking down of the tissues, followed by suppuration.

Diagnosis.—Important to differentiate from the following: Hematoma of the vulva, labial hernia, displaced ovary, hydrocele of the round ligament.

PHLEGMONOUS VULVITIS.

Forms more slowly.

Is hard at first, becoming softer.

PHLEGMONOUS VULVITIS.

Acute inflammatory symptoms.

Coughing produces no impulse.

Dullness on percussion.

Not capable of reduction.

History of traumatism.

PHLEGMONOUS VULVITIS.

Acute inflammatory symptoms.

Has irregular outline.

Menstruation produces no change in size and sensitiveness.

Develops more gradually.

Pressure does not produce in the patient the peculiar pain of an ovary.

PHLEGMONOUS VULVITIS.

Acute inflammatory symptoms.

No communication with abdominal cavity.

Not translucent.

VULVAR HEMATOMA.

Forms more quickly, and most frequent from pressure during labor.

Becomes harder.

LABIAL HERNIA.

Inflammatory symptoms not present unless hernia is strangulated.

Impulse present.

Tympany on percussion.

Possibility of reduction.

Generally none.

DISPLACED OVARY.

None.

Definite shape and about the size of an almond.

Menstruation increases both size and shape.

Appears suddenly.

Pressure on an ovary produces a peculiar pain.

HYDROCELE OF ROUND LIGAMENT.

None.

Occasional communication with abdominal cavity.

Translucent.

Treatment.—Rest in bed. If seen early apply lead water and laudanum and attend to general condition by prescribing tonics; quinin, arsenic, iron, etc. If the case appears to be tending to suppuration, open, wash out with bichlorid of mercury 1 : 2000 or other efficient antiseptics, pack with iodoform gauze and drain.

DIPHThERIC AND CROUPOUS VULVITIS.

Appears only in connection with constitutional diphtheria or croup, excepting in the puerperal state, when it is not a true diphtheria. Most common during childhood.

Diagnosis.—The grayish yellow spots are soon followed by ulceration and redness of the adjacent parts. In diphtheria, the membrane is firmly adherent, while in croup it is easily removed. In diphtheria, the mucous membrane is transformed into a dead coagulated mass, while in croup the membrane is deposited upon the inflamed mucous membrane.

Cases of primary diphtheritis of the vulva are very rare. Winckel claims to have seen but a single case.

Treatment.—The constitutional treatment would be the same as in other forms of diphtheria or croup. Locally, applications of antiseptics such as peroxid of hydrogen, bichlorid of mercury, etc., are to be recommended.

GANGRENE OR NOMA OF THE VULVA.

Causes.—A poorly nourished condition of the tissues. May follow a long continued pressure from the presenting part of the child during labor, the infectious fevers, and rarely, severe cases of vulvitis.

Symptoms.—True noma usually occurs in poorly nourished children and is a fatal disease.

1. Increase of redness and infiltration of one labia accompanied by a discharge of ichorous serum.

2. Vesicles form.

3. Formation of a slough, grayish-green in color, with rapid spreading of the gangrene.

Treatment.—Incise, leave wound open and keep constantly wet with antiseptic solutions. The system generally should be

sustained by tonic treatments of quinin, strychnin, and arsenic. Alcohol and a good diet, are indicated.

DIABETIC VULVITIS.

Cause.—Is apt to occur in the course of diabetes mellitus, probably from the presence of penicillium in the urine, the disease taking its origin from the urethra.

Symptoms.—Intense itching, the parts becoming later a coppery red with considerable swelling. The tissues become dry, wrinkled and brittle. The disease may extend into the groin and over the mons veneris, or even to the folds of the nates and around the anus.

Treatment.—Constitutional treatment should be directed against the diabetic condition. Tepid solution of salicylic acid or bichlorid of mercury 1:1000. Dry and apply a mixture of vaselin and salicylic acid 1:300 (Winckel), benzoated zinc ointment, iodoform ointment, cocain, solution of carbolic acid ten per cent. or menthol five per cent., one to two per cent. solution silver nitrate, and many other agents, have been recommended. The parts should be protected from contact with the urine and irritating vaginal discharges.

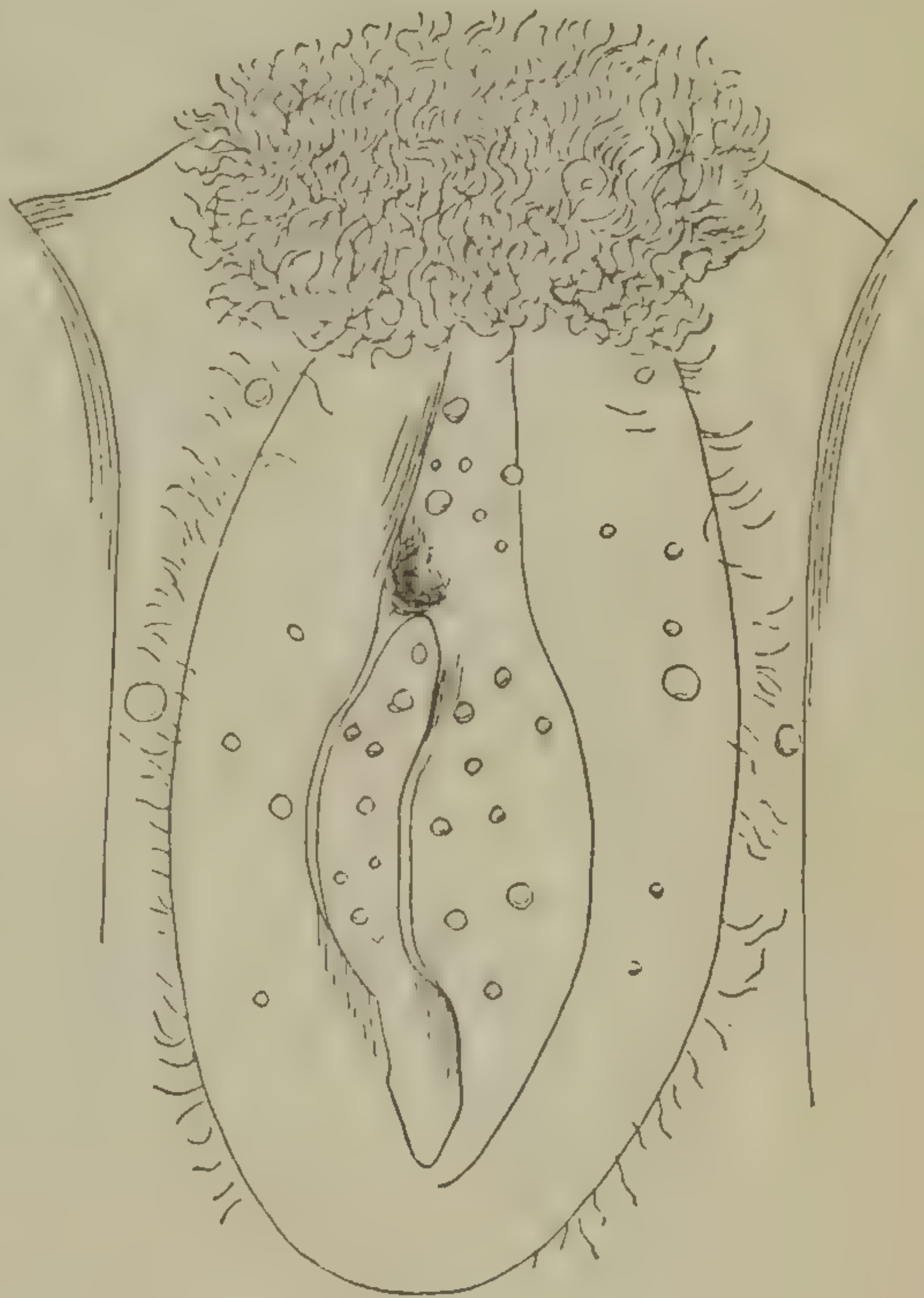


FIG. 40.—FOLLICULAR VULVITIS.

FOLLICULAR VULVITIS.

This form is found only in adults. It is an inflammation of the glands of the vulva. Mucous and sebaceous glands and even

hair follicles may be involved, producing small papillary elevations on the surface of the labia and prepuce. There may be an exudation of mucus and muco-pus.

Causes.—Want of cleanliness, irritating discharges from the vagina, pregnancy, malignant diseases, a poor state of vitality.

Symptoms.—Burning on urination is present when the mouth of the urethra is involved. Vaginismus may be present.

Diagnosis is based on the small, round, red papillæ scattered over the labia, clitoris and prepuce. When the mucous membrane alone is affected, the appearance is sometimes described as resembling the mucous membrane of the tongue.

Treatment.—In mild cases same as in other forms. Solutions of nitrate of silver, grs. x to $\frac{3}{4}$ j, or bichlorid of mercury, are highly recommended. It is often necessary to empty the follicles by alkaline fomentations, pressure by pads of dry absorbent cotton or, as is recommended by some gynecologists, puncturing by means of a bistoury or bayonet-pointed scarificator, after which a mixture of equal parts tincture iodin and glycerin should be applied. Powders of calomel and bismuth dusted over the parts sometimes give relief.

PRURITUS VULVÆ.

Pruritus appears mostly as a symptom of other conditions. It arises often in the course of pregnancy, from uncleanness, irritating discharges from the upper part of the genital tract from diabetes, tumors, etc. It occasionally appears about the menopause. Any cause producing congestion of the parts about the vulva, may produce pruritus.

Symptoms.—Intense itching, particularly after walking or becoming warm in bed. As the condition progresses, the itching becomes constant, and the patient becomes so afflicted that she may become quite melancholic.

Treatment.—Treat the cause when possible. Diet should be regulated to suit the causal disease. Strict cleanliness must be observed. When the condition is caused by diabetes, a course of salicylate of soda is recommended. The patient should take warm sitz baths and have the parts affected by the pruritus washed with any of the following: Lead water and laudanum applied hot,

or carbolic acid two to three per cent. The parts should be well dried and dusted with equal parts of calomel and bismuth. Nitrate of silver, grs. viij to xij to the ounce, may also be used.

CYST OF VULVOVAGINAL GLAND.

Causes occlusion of the duct of the glands of Bartholin, from catarrh, gonorrhea or extension of inflammation from the vulva.

Symptoms.—A tumor the size of a walnut, without inflammation, can be felt over the site of the vulvovaginal gland, which is situated at the sides of the ostium vaginæ, between the vagina and the ascending branch of the ischium. The ducts of these glands open just anterior to the hymen or the caruncula myrtiformes. When the seat of the cysts is in the duct of the gland, the tumor is more elongated than when it is in the gland.

Treatment.—Excise a portion of the mucous membrane in the shape of an ellipse, over the inner surface of the sac. This exposes the sac and enables a large elliptical piece to be cut from it. The sac must be emptied and packed with iodoform gauze. Antiseptic dressings must be applied. A second method is to dissect out the entire sac, the edges of the wound being afterward approximated and stitched together with catgut.



FIG. 41.—ABSCESS OF THE VULVO-VAGINAL GLAND.

ABSCESS OF THE VULVOVAGINAL GLAND.

Causes.—Same as those of a cyst. May develop from a cyst.

Symptoms.—Pain and heat with a hard tumor in the situation of the vulvovaginal gland, the inflammation often extending to

the orifice of the duct. Considerable tenderness on pressure. As pus is formed in the abscess cavity, fluctuation can be felt.

Diagnosis.—Abscess of the vulvovaginal gland may be distinguished from a cyst, by the presence of inflammatory symptoms and its sensitiveness on pressure. From phlegmonous vulvitis, principally by its more distinctly globular outline; from pudendal hernia, it can be differentiated by its lack of impulse on coughing, the inflammatory symptoms and its not being capable of reduction.

Treatment.—If seen early apply lead water and laudanum, or a poultice of flaxseed, or cold applications. Sitz baths may be employed. If symptoms continue and pus forms, the abscess should be opened on its inner surface and the sac dissected out as in the case of a cyst, or scraped out with a sharp curette, washed out with a solution of bichlorid of mercury 1 : 1000 and packed with iodoform gauze. An antiseptic dressing must be applied. The patient must be put to bed. It should be remembered in extirpating the sac of a cyst or abscess of the vulvovaginal gland that troublesome hemorrhage may be encountered from the bulbs of the vagina and the transversus perinei artery.

HERNIA INTO THE LABIUM MAJUS—(PUDENDAL HERNIA).

Corresponds to scrotal hernia in the male. It is caused by nonobliteration of the canal of Nuck, a process of peritoneum which during embryonic life follows the round ligament through the inguinal canal to its point of termination in the greater lips of the vulva. Usually this canal is cut off about the time of birth.

Pudendal hernia is divided into anterior and posterior; the anterior is much the more common. In anterior (hernia labialis inguinalis), the ovary, bowel and omentum descend through the inguinal canal, being forced along the round ligament to the external ring and thus into the labium majus. Posterior (hernia vaginalis labialis) is a very rare form. The bowel, omentum, ovary or Fallopian tubes may pass through a defect in the pelvic fascia anterior to the broad ligament, and pass along by the side of the vagina, appearing in the posterior portion of the labium majoris.

Causes.—Straining at stool, blows, falls or violent exertion.

Symptoms.—In the anterior form a rounded, soft, insensitive tumor will be felt in the upper part of the labium, sometimes resonant on percussion, and usually disappearing with a gurgling sound if the patient is placed in the knee-chest position. In the posterior form of hernia, the tumor is felt under the pubic ramus.

Diagnosis.—Pudendal hernia can be differentiated from cyst of the vulvovaginal gland by the latter being more posteriorly situated in the labium and being tense, tender, not capable of reduction and cannot be traced upward. Abscess of the vulvovaginal gland has surrounding it the usual area of inflammation.

Treatment.—Reduce the hernia if possible and retain in position by means of a truss or belt with a pad attached to a stem.

HYDROCELE OF THE ROUND LIGAMENT.

Is a collection of fluid in the tube-like pouch of peritoneum, which accompanies the round ligament through the inguinal canal (canal of Nuck). The exudation of fluid may take place also in the tissues of the round ligament itself or into the labia majora external to the covering of the round ligament. The affection is one of the greatest rarity.

Diagnosis.—A tumor in the labia or inguinal region in which fluctuation may be obtained and which is translucent. No inflammatory symptoms as in abscess of vulvovaginal gland, no impulse on coughing as in pudendal hernia.

Treatment.—Same as in hydrocele in the male.

PUDENDAL HEMATOMA.

This is sometimes called hematocele, thrombus of the vulva, etc., and is an effusion of blood into the vulvovaginal tissues or into the areolar tissues surrounding the vagina. It is usually unilateral, occurring in the labia of one or the other side.

Causes.—Blows, falls, pregnancy, tumors. It frequently occurs after labor or from strong bearing down after sewing a lacerated perineum, or it may arise from any condition producing or accompanied by a dilatation of the vessels about the vulva.

Symptoms.—Sharp, tearing pain accompanied by more or

less faintness. If the effusion is large, it may press on the urethra causing difficulty in micturition.

Diagnosis.—Pudendal hematoma can be distinguished from labial hernia by the history, the lack of impulse, and its lack of resonance on percussion, the hernia being tympanitic; its irreducibility and the fact that the tumor of hematoma or hematocele is soft at first, later becoming hard.

Treatment.—Try to check the flow of blood by applications of ice or pressure or both. If the hemorrhage is large, or dangerous, or if it obstructs the passage of the presenting part during labor, the best treatment consists in incision, emptying under antiseptic precautions and packing with iodoform gauze. If the effusion is small, lead water and laudanum or aluminium acetate have been advised.

HEMORRHAGE FROM THE VULVA.

Causes.—Lacerated or punctured wound, tearing or rupture of varicose veins of the labia.

Occurring in young children shortly after birth, it is apt to mark a profound change either in the blood itself, or in the condition of the vaginal mucous membrane. Secondarily from hematoma.

Treatment.—Try to find the bleeding vessel, catch with a pair of hemostatic forceps and tie. If the vessel is small, compress the bleeding point with a pad and bandage, putting the patient in a state of complete rest. Pack the vagina with tampons saturated with a hot solution of creolin. In young children, the condition should be treated by injections of hot creolin solution locally, the condition of the blood being improved by arsenic, and inunctions of olive or cod-liver oil.

CUTANEOUS DISEASES OF THE VULVA.

The principal diseases affecting the vulva are: eczema, erythema, kraurosis, acne, herpes, prurigo, scabies, erysipelas.

ECZEMA.

Causes.—Irritating discharges from vagina or cervix, disturbance of the gastrointestinal tract, menopause, vesicovaginal fistula, diabetes.

Symptoms.—In the acute form, the eruption is characterized by vesicles and some inflammation of the underlying skin. The vesicles break and discharge a serous fluid, which tends to dry and form scabs. Severe itching and burning accompany the condition. In the chronic form, the skin of the affected parts becomes thickened and covered with scales. Subjective symptoms same as in the acute form.

Treatment.—*Acute Stage*, moderate doses of calomel with salines, restricted diet with local soothing applications; of these bismuth powder, douches of 10 per cent. solution of carbolic acid; hip baths or benzoated zinc oxid ointment containing five or ten per cent. of carbolic acid; strips of lint covered with diachylon plaster applied after thoroughly scrubbing the parts with green soap, have also been recommended. In *chronic cases* five per cent. solution of carbolic acid may do good. Almond or other bland soap may be useful to wash off scabs, and ointments should be applied. The general condition should be attended to by arsenic, iron and tonics.

ERYTHEMA.

This is especially liable to occur in hot weather and among stout persons.

The **causes** are dirt, rubbing of the parts, irritating discharges.

Symptoms.—Redness of the parts, considerable sensitiveness. The affected parts are often excoriated and painful during exercise.

Treatment.—Laxatives, diuretics, mild drying powders such as subnitrate of bismuth, zinc oxid, or calomel.

KRAUROSIS (*κραῦρος*, *shrunk*, *dry*).

A rare disease described by Breisky, of Vienna.

Symptoms.—The skin of the labia and mucous membrane of the labia majora and nymphæ and of the vestibule, as well as the outer surface of the hymen, becomes white, tense and contracted. Severe pains, coming in paroxysms and at irregular intervals, accompany the condition. May affect virgins. The treatment recommended by Heitzmann consists in curetting with a sharp instrument and painting the surface with a saturated solution of salicylic acid.

ACNE.

Consists of an engorged condition of the sebaceous follicles covering the labia. The engorgement consists of the true secretion of the glands.

Treatment.—Lead water and laudanum, zinc oxid, bathing with tepid water, and attention to the general health.

HERPES.

Consists of one or more groups of vesicles without inflammation of the surrounding skin ; often occurs during menstruation or pregnancy. The treatment should consist in opening the bowels and applying a soothing lotion. A douche of borated water or mild carbolic solution is recommended. Powders of zinc oxid or acetanilid and chalk in equal parts are efficient.

PRURIGO.

A papular eruption, causing distressing itching and pruritus.

Treatment.—Carbolized zinc ointment, alone or with two per cent. of menthol added ; chloroform in almond oil relieves the itching in some cases.

SCABIES.

Cause.—This is a parasitic disease produced by the *acarus scabiei*. It is usually part of a general infection.

Symptoms.—Intense itching, increasing when the body is warm. As the disease is part of a general infection, the burrows of the itch mite can be found in other parts of the body.

Treatment.—A warm bath, with free use of soap, followed by dusting the parts with sulphur. Sulphur combined with balsam of Peru is highly recommended by some authorities. An ointment composed of sulphur may also be applied.

PEDICULI (*Pediculus Pubis*).

May be found about the external genitals.

The symptoms are the same as in other parts of the body.

The best treatment is to shave the hair and thoroughly rub in oleate of mercury in strength of ten per cent. Bichlorid of mercury 1 : 1000, carbolic acid solution five per cent., or the tincture of delphinium.

ERYSIPELAS.

This disease occurs mostly in new-born infants or puerperal women. The symptoms are the same as in other forms of the disease, and should be treated in the same manner. It is a rare disease.

TUMORS OF THE VULVA.—(PAPILLOMATA. WART.)

SIMPLE PAPILLOMATA.

These occur rarely on the vulva. If found to cause inconvenience or to have rapid growth, may be destroyed by means of acetic or nitric acid or removed by excision.

CONDYLOMATA ACUMINATA.

May be due to gonorrhea or irritating discharges found chiefly on the lesser labia, at the posterior commissure. They are always multiple.

Treatment.—Excision with scissors or with a knife, followed by touching the stump with nitric acid. Cocain may be used to allay pain.

CONDYLOMATA LATA.

These occur on the inner side of the labia majora, on the perineum, and about the anus. They are always of syphilitic origin and should be treated on antisyphilitic principles.

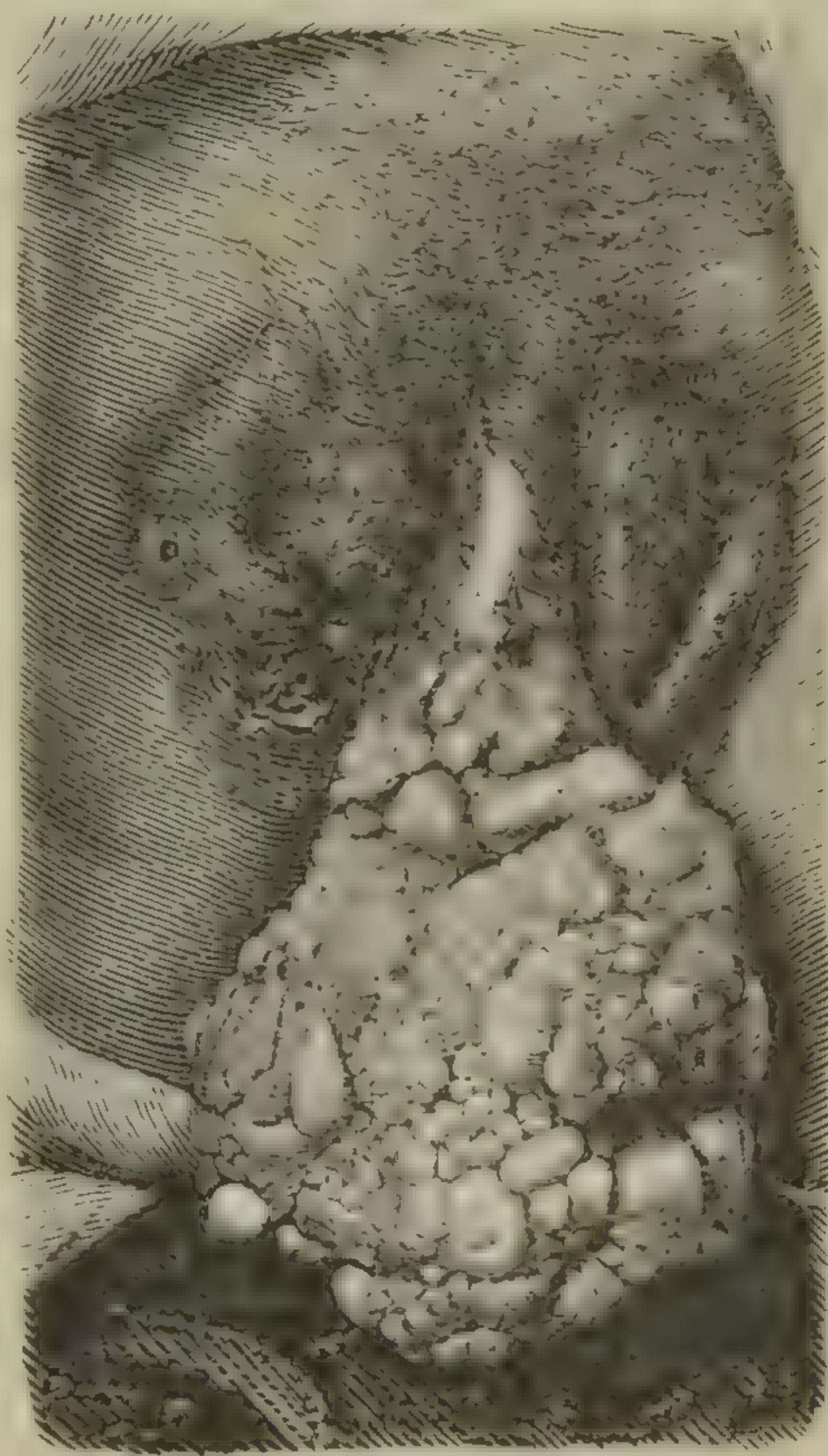


FIG. 42.—ELEPHANTIASIS OF VULVA.

ELEPHANTIASIS OF THE LABIA AND VULVA.

Most commonly appears on the labia majora and clitoris, though the labia minora may be affected.

The diagnosis can be made from the fact that the tumor is in the skin itself and cannot be separated from it.

Treatment.—Removal by cutting and suturing. Fibromata and lipomata of the vulva are usually found in the labia majora. The treatment consists in dissecting them out and closing the wound with deep sutures.

LUPUS.

May occur either on the labia majora or minora, or both. It appears as a smooth, bright red colored swelling, varying in size from a pea to a pigeon's egg, healing in one place and ulcerating in another. The inguinal glands are not enlarged (*Winckel*).

Treatment.—Remove diseased parts when possible. Thorough curetting with a sharp spoon should be tried, followed by disinfection with a strong acid. Free incision may be made to aid cicatrization. Cauterization by electropuncture is recommended by some. The treatment must be repeated until all the foci of disease are destroyed.

MALIGNANT TUMORS OF THE LABIA AND VULVA.

These are rare. In the order of their frequency they are: Epithelioma and scirrhus, carcinoma; sarcoma, and medullary sarcoma. Epitheliomata appear as small, round, hard nodules, of a whitish color, on the inner surface of the greater labium.

The other tumors of this class are extremely rare; as primary growths, when they do appear, they are generally first seen on the greater labium. Scirrhus may develop in the clitoris and surrounding tissue. Sarcoma occasionally originates in the nymphæ.

These tumors appear as deep, hard nodules, rapidly spreading toward the skin surface, having the characteristic appearance of cancer in other parts of the body.

Treatment.—Excision, when possible. When the disease is too far advanced, use thorough cleanliness by means of antiseptic irrigation, with anodynes for relief of pain.

VAGINISMUS.

Definition.—A painful and spasmodic contraction of the vaginal orifice, which more or less effectually prevents coition.

Cause.—This condition is in many instances formed by an

extremely sensitive condition of the carunculæ myrtiformes, the remains of the torn hymen. These, which normally are insensitive, become so tender that the slightest touch will produce violent contraction of the sphincter vaginæ muscle. A microscopic examination of one of the caruncles will frequently show that while the outward appearance is unchanged, an excessive number of nerve filaments can be demonstrated. They are practically neuromata. Vaginismus may also be caused by an eroded and tender vaginal orifice. Fritsch describes a case due to a fissure beneath the clitoris. A urethral caruncle may also produce this condition. A long perineum has been ascribed as a cause.

Treatment.—If the condition is caused by a hypersensitive caruncle it should be dissected out, the patient being under an anesthetic. When arising from a sensitive or thick hymen, the latter may be forcibly dilated by inserting the thumbs and separating them, the patient being under an anesthetic, the vaginal orifice being afterward dilated by means of a Sims' glass vaginal plug. Among the various means for the relief of vaginismus, not so radical as the above, may be mentioned; injections of warm water and laudanum, or a ten per cent. solution of cocain, applied either in a vaginal suppository or painted over the orifice a short time before coition.

COCCYGODYNIA.

Definition.—"Coccygodynia consists in a morbid state of the coccyx or of the muscles attached to it, which renders their contraction and the consequent movement of the bone very painful" (*Thomas and Mundé*). It is most common in women who have borne children.

Causes.—Injuries during parturition, blows and falls on the coccyx, cold or exposure, uterine or ovarian disease, horseback exercise (*Scanzoni*), neurasthenia.

Diagnosis.—It should be distinguished from spasmodic muscular contraction due to ascarides in the rectum and anal fissure. There is very seldom any degeneration in health, although the condition may last a long time.

Symptoms.—Severe pain in the region of the coccyx, increased by motion and particularly any movement causing con-

traction of the coccygeal muscles, such as rising from a low seat or after sitting for some time, coition, defecation, or walking.

Treatment.—The general health should be looked after. Local treatment in the form of hypodermic injections of morphin gr. $\frac{1}{6}$ to $\frac{1}{4}$, blisters over the coccyx, or the galvanic current, are recommended. If these fail, then section of the muscular attachments of the coccyx should be practiced as follows: The operation may be done with a tenotomy knife, which is passed under the skin at the lowest part of the coccyx, turn the knife flat and carry up between the skin and cellular tissue until its point reaches the sacrococcygeal junction, then turn the edge so that in withdrawing it the coccyx is entirely freed from its muscular attachments. When the operation is completed on one side of the bone, it must be repeated on the other. In many cases where the bone is diseased, it will be found necessary to make an incision over the coccyx, lay bare the bone, sever its attachments, and remove the whole of it by a pair of bone forceps.

URETHRAL CARUNCLE.

This is a small raspberry-like, sensitive tumor found at the mouth of the urethra, often causing severe itching and pain.

Its **cause** is uncertain. The distress arising from it often causes hysteria and melancholia. May be single or multiple, more commonly the former.

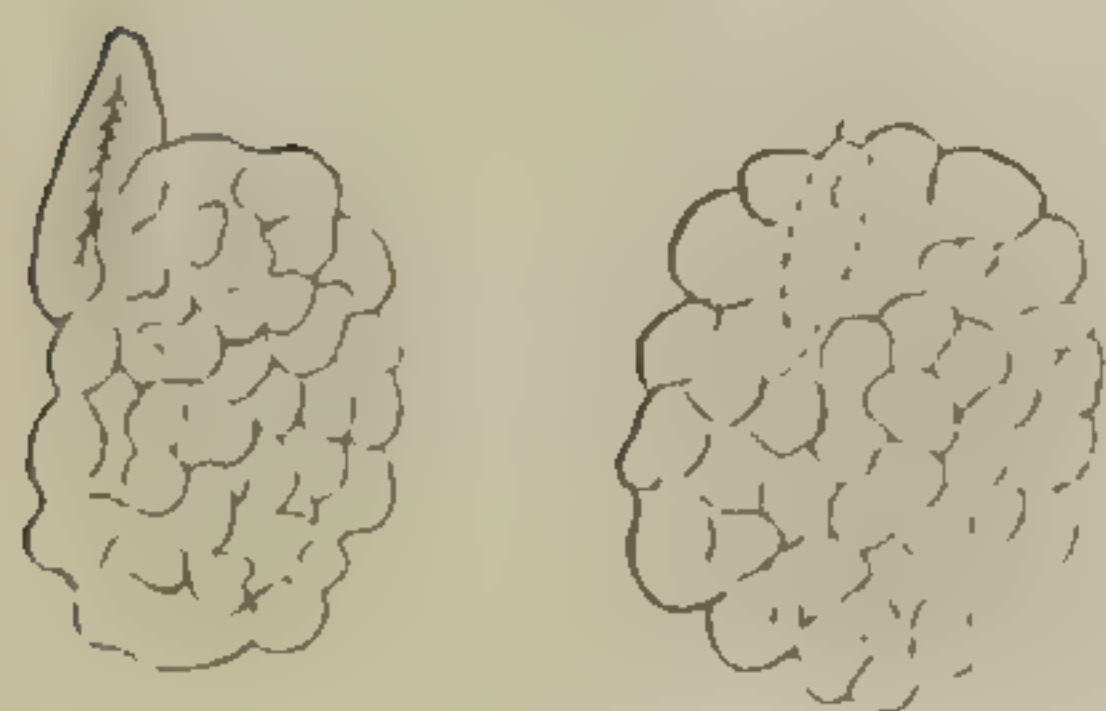


FIG. 43.—URETHRAL CARUNCLE.

Diagnosis.—It is differentiated from venereal warts by its greater vascularity and the fact that it is usually single, and its much greater sensitiveness; from urethral polypus, by its sensitiveness and greater

vascularity; prolapse of the urethral mucous membrane usually surrounds the orifice like a small collar, can be reduced by manipulation and is less sensitive.

Treatment.—If small, the application of the actual cautery, the patient being under anesthesia. If large, excise, taking care to include some of the tissue below the base to prevent its return. Any hemorrhage may be controlled by small sutures. Some

operators prefer ligating the tumor before excising it, or touching the stump with nitric acid.

URETHROCELE.

This is a localized dilatation of the urethra in some portion of its extent, forming a sac with a more or less constricted mouth.

Cause.—Injuries in labor is the most generally ascribed cause.

Symptoms.—Sharp cutting pains on urination, the desire to empty the bladder being constant. If the sac is of any size, the urine collects and is expelled when the patient laughs or coughs; considerable excoriation of the parts is produced by the urine.

Diagnosis.—By passing a curved sound, the point pressed against the urethral wall; it is arrested by the sac and a small amount of urine is passed before the sound enters the bladder.

Treatment.—The treatment described by Bozeman consists in making an opening on the anterior wall of the vagina, at the most dependent part of the sac, thus allowing free drainage and permitting the mucous membrane to resume its normal condition. A plastic operation is performed later, to restore the urethra to its normal condition.

URETHRAL STRICTURE.

These are rare. The causes are injuries during labor, gonorrheal urethritis, syphilis, rarely tuberculosis, applications of strong corrosives, such as nitric acid or bichlorid of mercury. Vesicovaginal fistula of long standing may produce a gradual narrowing of the urethral caliber. The treatment consists of dilatation by Hegar's dilators, commencing with one of the small sizes and gradually increasing. The dilatation should be made by slow degrees to avoid rupture of the urethra.

PROLAPSE.

Prolapse or ectropion of the urethral mucous membrane is a condition sometimes found in female children. Urethritis, rectal irritation from fissure, prolapse, hemorrhoids, intestinal parasites, are frequently associated.

Treatment.—In recent cases, replace the prolapsed membrane and put the patient to bed for some days, using suppositories of tannin or applications of dilute carbolic acid or iodine. The primal cause should be sought for and treated. If the condition should continue, the redundant mucous membrane should be excised, and the external or vaginal, and the urethral mucous

membrane brought together by radiating sutures of fine silk.

The Paquelin or galvanocautery may be also used for the same purpose. Where great redundancy exists, Emmet's button-hole operation may be done as follows: a hole is made in the urethro-vaginal septum, and the urethral mucous membrane is drawn through until the prolapsed portion is returned into the urethra, when it is stitched in the angles of the wound and snipped off. The fistula may be closed at once or later.



FIG. 44.—PROLAPSE OF URETHRA.

VULVOVAGINAL HYPER- ESTHESIA.

This is an excessively sensitive condition of the nerves of the whole or part of the vaginal mucous membrane at the entrance of the canal. The labia

majora, as a rule, are not included.

Causes.—A general state of malnutrition and neurasthenia, urethral caruncle. Often no cause can be found.

Symptoms.—Sudden flinching when the parts at the vaginal entrance are touched ever so lightly. If the finger, however, is placed well in the vagina or on the hymen, it may be borne without

complaint. Coition is painful. In some cases there may be a certain amount of inflammation of the internal genital organs.

Treatment.—Soothing applications, such as a five to ten per cent. solution of cocain, zinc oxid ointment. Bromids internally, sometimes do good. Attention should be given to the general health, and if a state of neurasthenia exists, a change of air, massage, tonics, etc., should be prescribed.

ANATOMY OF THE VAGINA.

The vagina is a musculomembranous canal, situated behind the bladder and in front of the rectum. It extends from the vulva to the uterus.

Its direction corresponds to the axis of the pelvic cavity, or at an angle of about 60° to the horizon when the woman is in the erect position. When distended, the vagina is cylindrical in shape, though ordinarily the walls are in contact with each other. The anterior wall is about three and one-half to four inches in length and the posterior about two inches longer. Above, the cervix uteri extends into the vagina for about one inch, the vaginal tissue is inserted into or more properly is continuous with that of the cervix, forming a series of arches or fornices, the anterior, posterior and lateral culdesacs. At its orifice the vagina is somewhat constricted, and this is its narrowest portion.

Structure.—Consists of an external or fibrous layer which is continuous with the perineal and pelvic fascia and contains large plexuses of veins, a middle or muscular layer consisting of longitudinal and circular fibres closely interlaced. The mucous coat is continuous with that of the uterus and presents numerous transverse ridges or rugæ. These are frequently partly obliterated after childbirth. They are more strongly marked on the anterior wall than on the posterior, are studded with papillæ and are connected by a thickened vertical ridge called the anterior column of the vagina. A similar, but less marked ridge exists on the posterior wall.

The mucous membrane is covered with squamous epithelium. The anterior wall is in relation with the urethra, lying behind the latter, and to a slight extent with the bladder and ureters. The posterior wall is in relation, and is closely attached by cellular tissue, to the rectum, and with the lowest portion of the peritoneum. This is known as Douglas's culdesac. The posterior wall is externally and below in relation with the perineal body. Laterally, the walls of the vagina are in relation with the pelvic cellular tissue and the bulbs of the vagina. These latter consist of masses of erectile tissue lying on each side of the vaginal orifice and covered by the sphincter vaginæ muscle.

The muscles in relation with the vagina are the sphincter and constrictor vaginæ and the levatores ani.

Arteries.—The vaginal branch of the internal iliac. It descends along the sides of the vagina and sends anastomosing branches all through the mucous membrane.

Veins.—The whole mucous membrane, especially near the orifice, is supplied by a network of veins, which communicate with the vesical plexus in front and the hemorrhoidal plexus behind.

Lymphatics.—The lymphatics of the mucous membrane terminate in the sacral and lumbar glands, except the lower fourth, which is drained by the inguinal chain.

Nerves.—Branches of the hypogastric plexus and fourth and fifth sacral nerves.

DISEASES OF THE VAGINA.

ATRESIA OF THE VAGINA.

Atresia of the vagina may be congenital or acquired. The congenital form is generally caused by some defect in the coalition of Müller's ducts or some inflammatory condition of the mucous membrane preceding birth, producing adhesions of the mucous surfaces of the vagina or hymen.

The obstruction may be in the upper or middle portion, or the whole canal may be occluded. Where the atresia is complete or

very extensive, it is apt to be accompanied by deficient development of the ovaries and uterus. Atresia may be acquired from caustic remedies carelessly applied; long pressure of the presenting part during labor, causing sloughing of the mucous membrane; mechanical agencies, as foreign bodies; impervious hymen; syphilitic, or other extensive ulcerations.

Symptoms.—In the congenital form, the condition may not be discovered until puberty; then amenorrhea, more or less complete, will probably exist. The notice of the gynecologist is generally called to the deformity when the patient marries, by the above symptom, by recurrent pains at the menstrual period and by an inability to perform the act of coition. Accumulation of menstrual blood will occur, causing pressure on the bladder and rectum, and as the accumulation increases, pelvic hematocele, pelvic peritonitis, hematosalpinx, hematometra or pyometra, or pyosalpinx occur, followed by rupture of the uterus or tube.

HEMATOCOLPOS

Is an accumulation of menstrual blood in the vagina caused by stenosis of the vaginal walls or imperforate hymen.

Symptoms.—Pain, particularly just after menstruation, with little or no flow of menstrual blood. On examination, the vaginal entrance will be found occluded by the hymen, and under the pubic arch there is an elastic tumor, which as the accumulation increases, will extend above the pubic bone. Rectal examination proves the presence of an elastic globular tumor, completely or partially filling the pelvis. A catheter in the bladder will aid in diagnosis.

Treatment.—Evacuation of the fluid under the strictest antiseptic precautions. The tendency to contraction should be guarded against by having the patient wear a glass plug.

Dangers.—Rupture of a dilated and adherent oviduct. Sepsis, due to infection of contents of vagina. Injury to bladder or rectum.

As a rule, operation for atresia due to congenital closure or absence of the vaginal canal itself, should be done.

1. If menstrual blood be retained.

2. If a uterus can be distinctly discovered and the patient be suffering from amenorrhea.

3. If the necessity for sexual intercourse be imperative. It should be avoided in other cases.

PROLAPSE OF THE VAGINAL WALLS.

Varieties.—Either the anterior or posterior walls may prolapse. The former is very rare without accompanying prolapse of the bladder. The latter more frequently appears. Accompanying prolapse of the uterus is common.

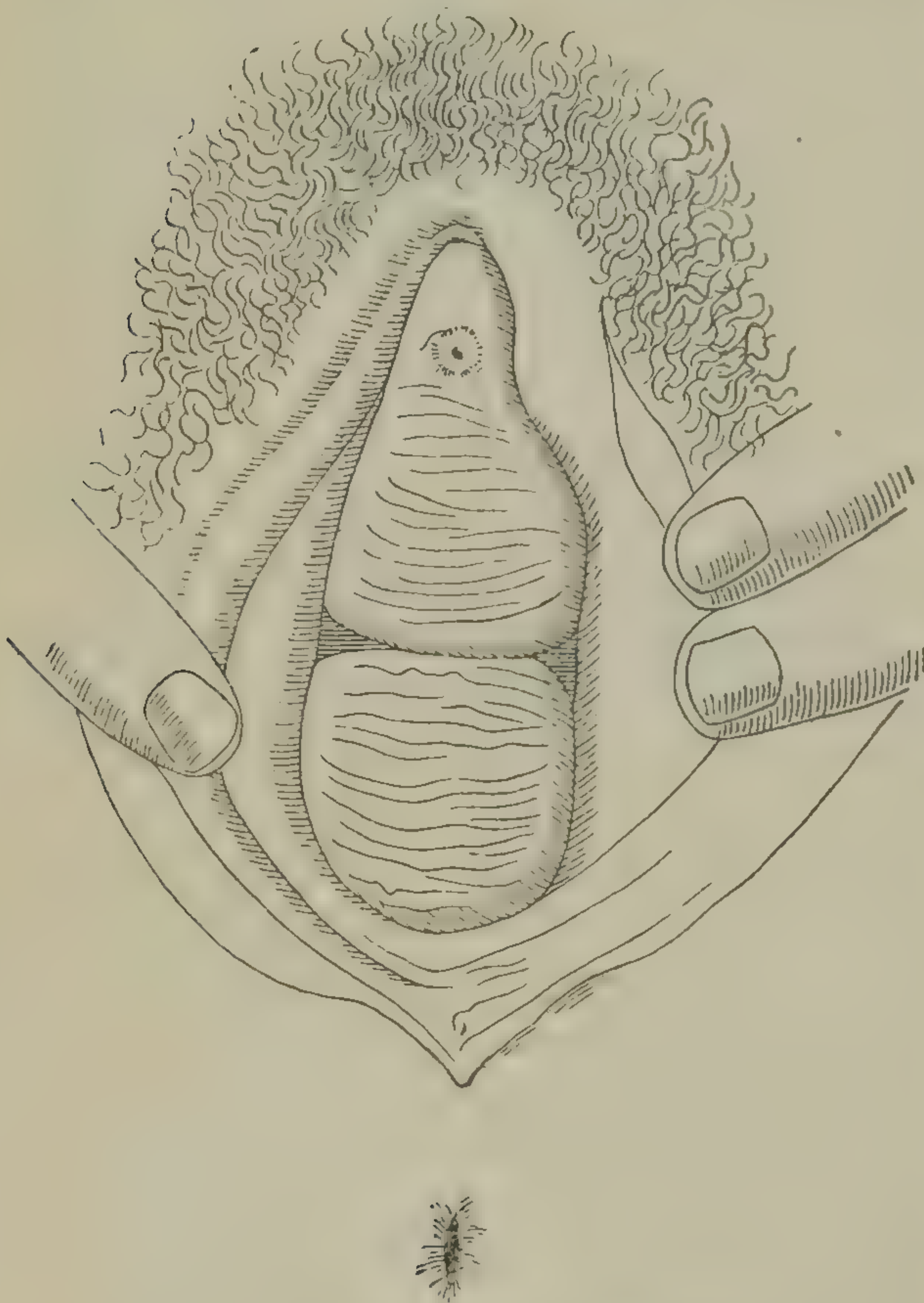


FIG. 45.—CYSTOCELE AND RECTOCELE.

Causes.—Laceration of the perineum, pressure on the vagina from tumors above, traction from below, lack of tone in the uterine ligaments or in the tissues of the vagina itself. Distention of the uterus during pregnancy. The condition occasionally but rarely occurs in children. Prolapse of the vaginal mucous membrane alone is known as *colpocoele*;

where the bladder shares in the prolapse, the affection is called *cystocoele*. Falling of the posterior vaginal wall, accompanied by the rectum, is designated *rectocoele*.

Symptoms.—Pain and discomfort, sense of bearing down with heat and fullness around the vulva. Physical examination demonstrates a tumor, which is firm to the touch, but contains no liquid. Excoriation of the vaginal mucous membrane is apt to be present. When the bladder is displaced (cystocele), straining at urination is present, and a catheter passed into the bladder will be found to pass downward and backward, instead of upward as in the normal condition. If rectocele appears, symptoms of difficult evacuation of the bowel, tenesmus, and a feeling as if the bowel was not entirely emptied will be felt.

Diagnosis.—The vaginal wall is displaced downward, forming a tumor which projects from the vulva, this tumor being increased when the patient bears down. This is particularly to be noticed when cystocele is present. In rectocele, a finger introduced into the rectum will easily pass into the posterior tumor. In cystocele, the examining finger passes behind the tumor; in rectocele, in front of it.

ENTEROCELE.

Enterovaginal hernia consists in the descent of a portion of the small intestines into the pelvis, so as to encroach on the vaginal canal (*Thomas and Mundé*).

Enterocoele may produce dangerous results in labor, through pressure upon the intestines by the presenting part of the child. It is a rare condition.

Treatment of Vaginal Prolapse.—Where the vagina alone is displaced, and not to a very marked degree, replace the prolapse, using tampons of cotton or wool saturated with alum, tannin, or zinc. Injections of these astringents may aid in the cure. Tampons covered with equal parts of iodoform and tannin have been recommended. In stout patients an abdominal bandage may give support and relief. Where enterocoele exists, replace by taxis. In replacing a prolapse with accompanying cystocele

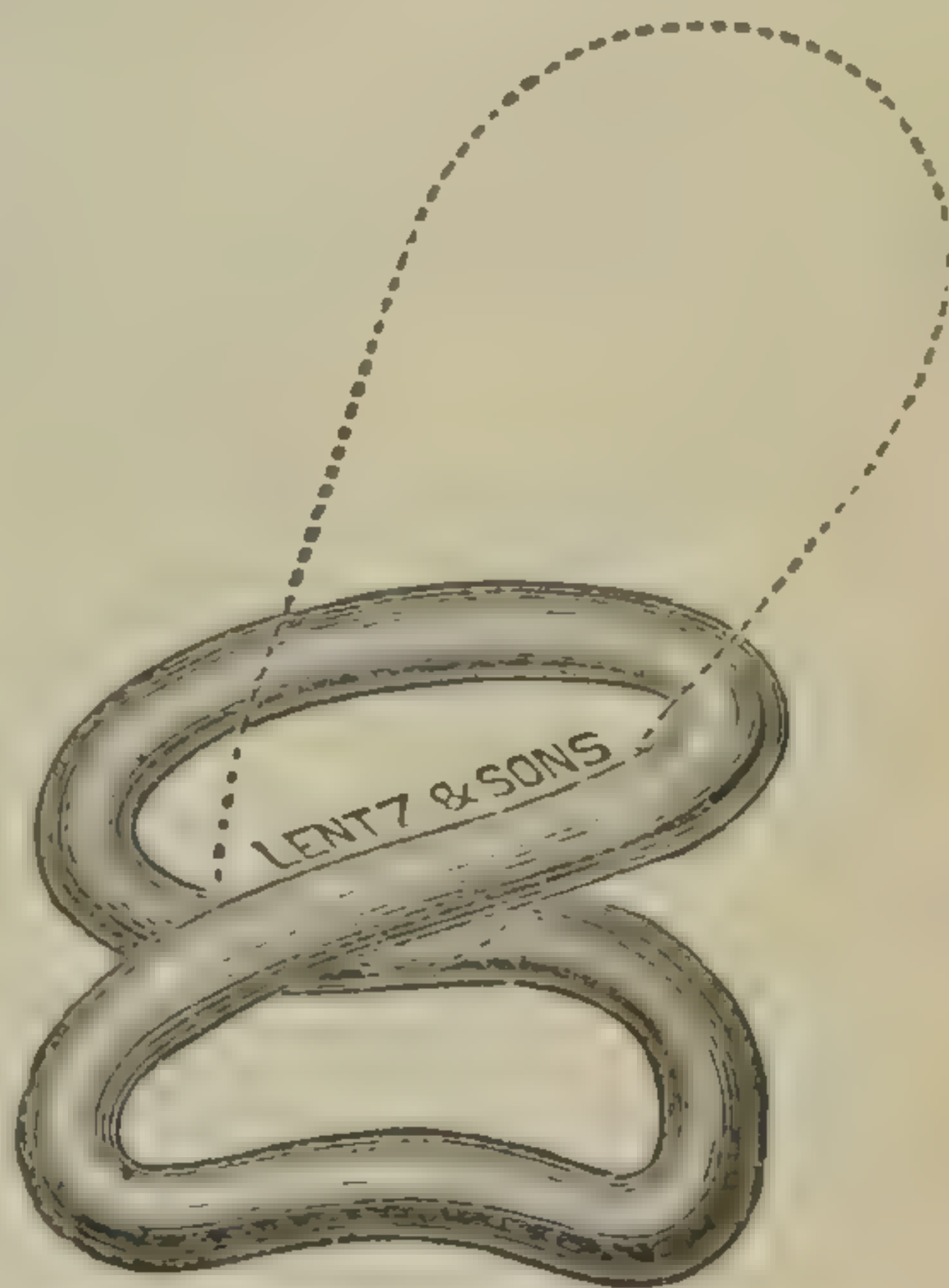


FIG. 46.—GEHRUNG'S PESSARY.

and rectocele, place the patient in the knee-chest position, and have bowels and bladder well emptied. After replacing the cystocele, a ring pessary or the pessary of Gehrung will be found useful for holding the prolapse in place.

OPERATIONS FOR CYSTOCELE AND RECTOCELE.

In the majority of cases the cure of vaginal prolapse, either primary or secondary, must be through surgical means, the suit-

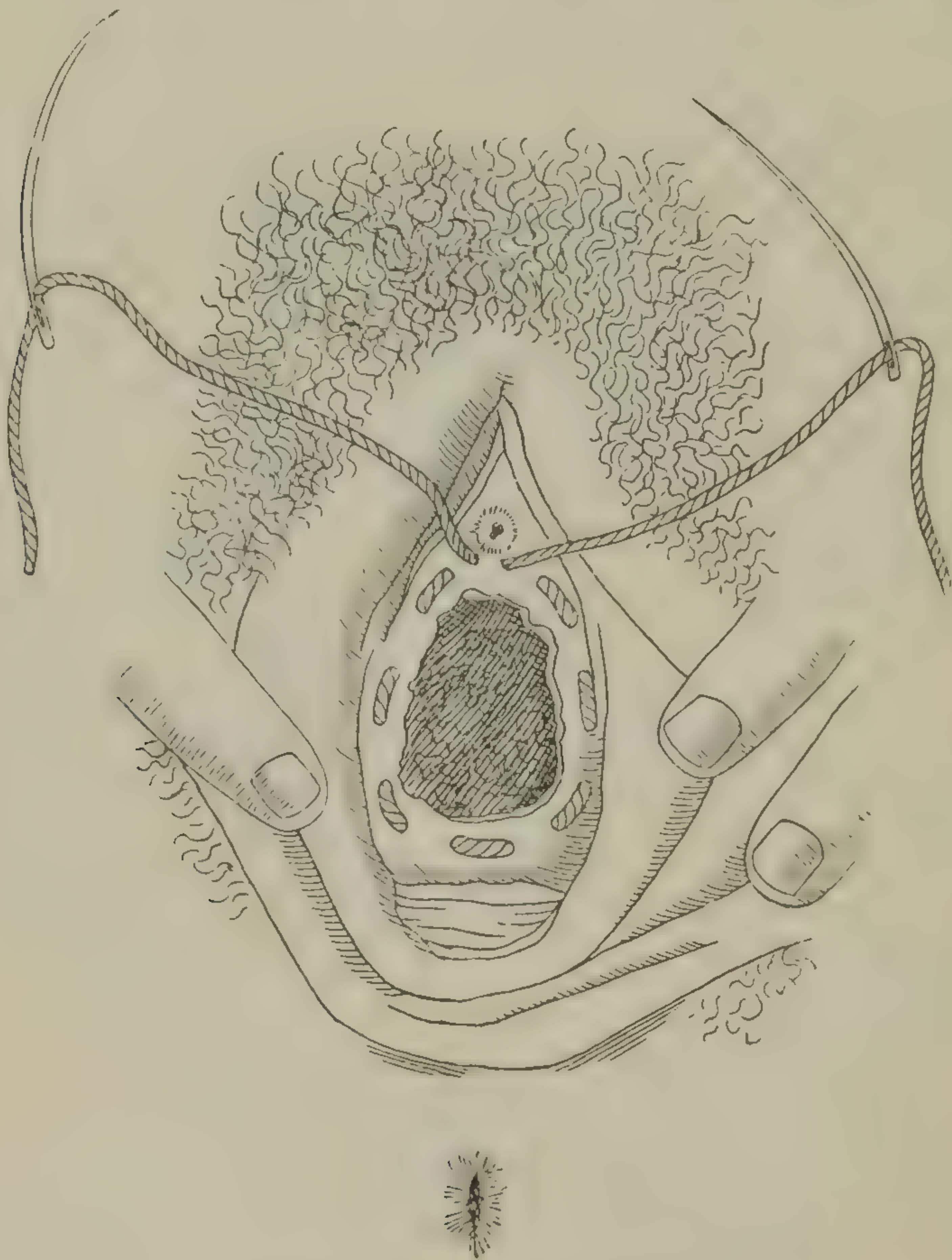


FIG. 47.—STOLTZ'S OPERATION.

able operation being dependent on the cause of the prolapse. When this is due to redundancy of the anterior vaginal wall, allowing descent of the bladder (cystocele), one of the following operations should be used.

Stoltz's Operation for Anterior Colporrhaphy.—Denude a circle of mucous membrane embracing the larger part of the prolapsed vaginal wall, and passing a rather thick suture around the circle, carrying it in and out the mucous membrane

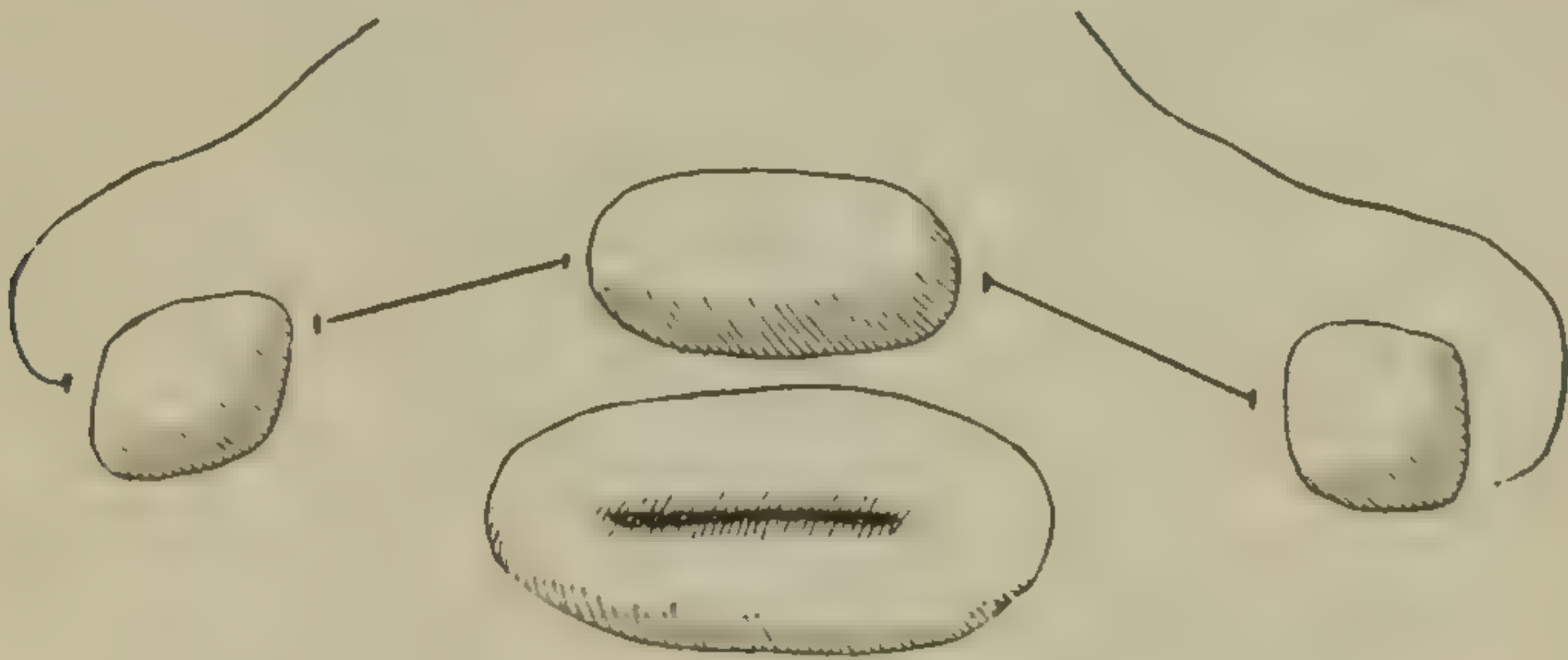


FIG. 48.—EMMET'S OPERATION, FIRST STEP.

about one-eighth of an inch from the edge of the denuded surface. Great care must be taken that the buried portion is thoroughly aseptic. The sutures are drawn, the wound being closed like the mouth of a purse. The denuded portion is pushed up, the vagina being narrowed by the amount of the denudation. For sutures, catgut or silk may be used. They should be left in for eight or ten days.

Emmet's Operation for Anterior Colporrhaphy.—The description of this operation is taken from the "American Text-book of Gynecology." A point just posterior to the urethra is marked, and another in front of the cervix, with tenacula; the lateral walls of the vagina, midway between cervix and meatus, are brought together. If they can be approached too readily, the tenacula should grasp farther out. The object is to catch up the sides of the anterior wall at points which may be approximated without too much strain. These being determined, they are marked. The four points thus chosen are united by an oval line, the greatest diameter of which is at the

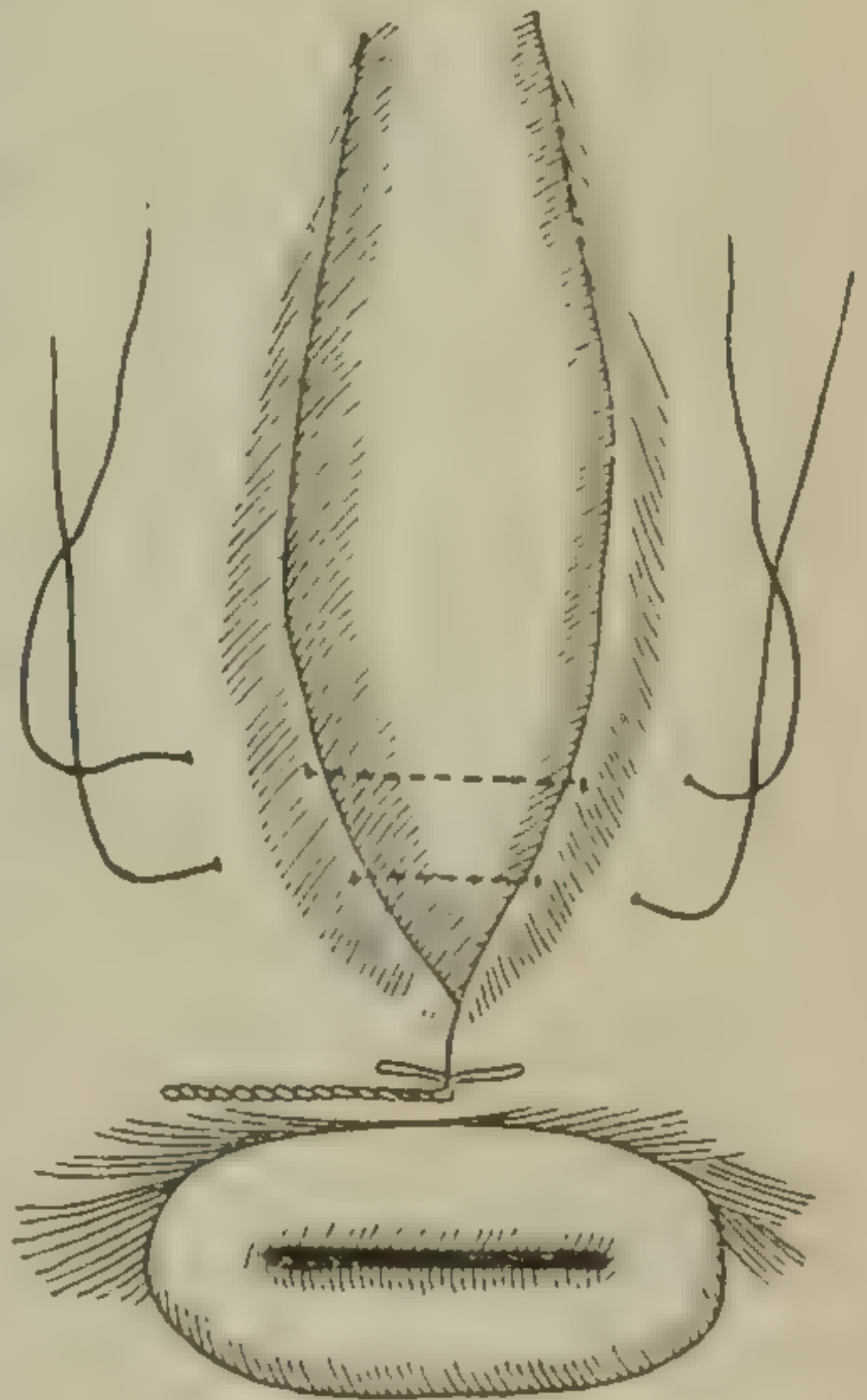


FIG. 49.—EMMET'S OPERATION, SECOND STEP.

middle of the vagina, or where there is the greatest amount of slack in the wall. Denudation is made with scissors. Sutures are preferably of silk-worm gut or catgut. The after treatment consists in keeping the patient in the horizontal position, drawing off the urine by a catheter, and producing constipation by means of opium.

Winckel's Operation consists of simply cutting an oval through the mucous membrane of the anterior wall, the point of the knife or scissors being inclined outward, so as to dissect or loosen a certain amount of the tissue; no surface is denuded. Sutures are passed across the edges of the oval, drawing them together, thus covering the patch of mucous membrane inside of the oval. The after-treatment of all is the same.

PROLAPSE DUE TO TEARING OR RELAXATION OF THE PERINEUM.

Anatomy of the Perineum.—The perineal body is a wedge-shaped mass, situated between the posterior border of the vulva and the anterior border of the anus. It forms a wedge, and is composed of muscles, areolar tissue, fat, nerves, and vessels. The important muscles are the two deep transversus perinei, levatores ani, which meet in the upper portion of the medium line of the perineum and are attached to the pubic ramus of each side. They extend about two-thirds up the posterior vaginal wall and encircle the posterior half of that canal (*Thomas and Mundé*).

As in the normal state of things, the vagina is in a state of collapse, its anterior wall rests upon and is supported by the posterior, which in turn is supported by the muscles and other tissues of the perineal body, is pressed upward and forward against the anterior wall, in fact. The perineal body also sustains the posterior vaginal wall, preventing prolapse of it. By the support of the anterior vaginal wall, the bladder is to a great degree held in place and its proper angle maintained. A proper degree of tension of the vaginal walls also, aids in maintaining the uterus in its normal position. When tears of the perineum occur it is of little importance if the laceration be through the cutaneous or subcutaneous portion of the structure, but laceration into the levatores ani at the point of junction, or even relaxation of the same, will cause subinvolution of the posterior wall, producing redundance of tissue and

consequent prolapse either of the posterior wall alone, or from loss of its support, the anterior wall with consequent cystocele may occur, or the uterus itself may prolapse from loss of support.

Causes of Lacerated Perineum.—By far the most common cause is tearing of the parts by the presenting part of the child in labor. It may arise from traumatism, such as falling astride some sharp object. Tearing of the perineum is a very common cause of prolapse of the bladder, of the rectum, or of the uterus.

Varieties of Lacerations of the Perineum.—For facility in description, we divide lacerations of the perineum into the following:—

1. Slight; when extending only through the fourchette and involving possibly a very small amount of the cutaneous surface of the perineum.

2. Extensive; when it begins at the fourchette and extends through the anal sphincter.

3. Internal; when the cutaneous surface of the perineum is preserved.

4. External; when the mucous membrane of the vagina is preserved, but the laceration extends through the posterior commissure of the vulva.

5. Partial; when it involves the structures down to, but not through, the sphincter ani muscle.

6. Complete; when the laceration extends through the sphincter ani muscle.

Symptoms.—The symptoms are those apt to be occasioned by prolapse. Sometimes in addition there will be dragging pain in the vulvar region and leukorrhea. Incontinence of urine may be present, and when the sphincter ani is torn, the patient will not be able to retain feces.

Examination with the fingers inserted into the vaginal orifice, so that the labia are separated, will demonstrate the tear. Tell the patient to bear down and the prolapse of either the anterior or posterior vaginal wall, if present, will at once appear.

Treatment.—The only treatment of prolapse of the vaginal walls due to laceration of the perineum, that is of any avail, consists in closing the laceration and if redundancy of the vaginal walls exist, in removing enough tissue to narrow the canal sufficiently to prevent future prolapse of its walls.

Operations.—Preparatory.—The patient's bowels should be freely moved by magnesia sulphate, followed by an enema. All hair on the mons veneris and about the vulva should be shaved off and the parts prepared according to the rules given in the chapter on antiseptics.

Two triangles are marked out on either side of the central line

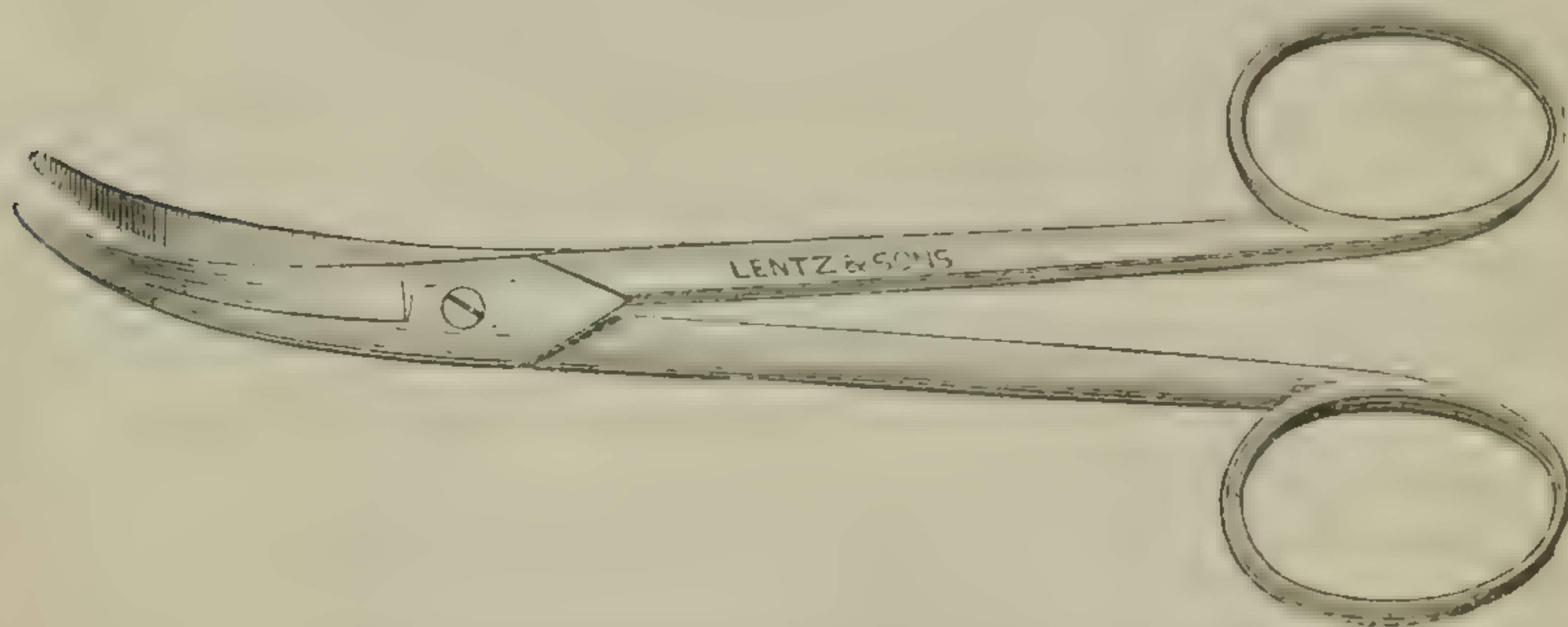


FIG. 50.—MODERATELY CURVED SCISSORS.

of the posterior vaginal wall; the apices of these triangles are above and extend into the vaginal sulci on each side. The triangles are denuded as follows: a tenaculum is inserted into the central point chosen and a second tenaculum into one of the lateral points, they are then given to an assistant, who draws the central

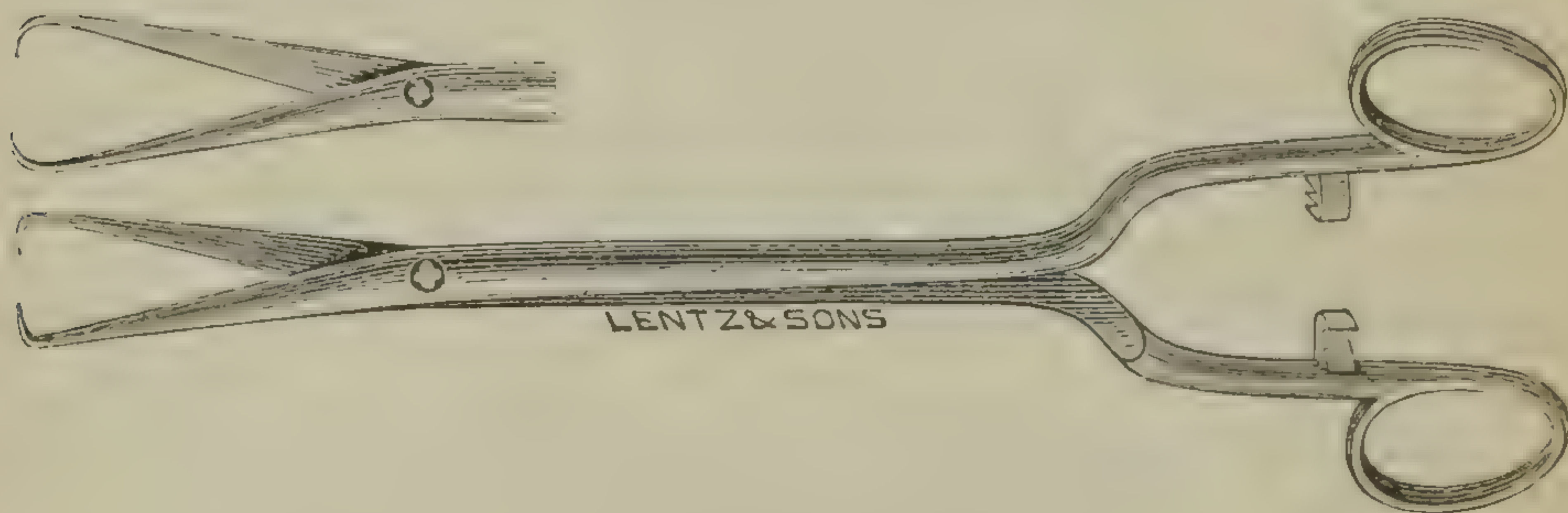


FIG. 51.—TOOTH FORCEPS.

point to the opposite side from the first tenaculum and forward. The apex of the triangle is by this means drawn nearly in line with the two tenacula, and along this line a narrow strip of mucous membrane is now denuded with scissors. Complete the denudation of this triangle with scissors. The lateral point on the other side is

seized with a tenaculum and the central point drawn toward the denuded side, this triangle being denuded in the same manner as the first. As much of the cutaneous surface of the perineum as is necessary should be included in the denudation. The parts are now irrigated and inspected to make sure that the denudation is complete. The sutures are introduced in the following manner: The apex of one triangle is first closed with sutures of silk-worm

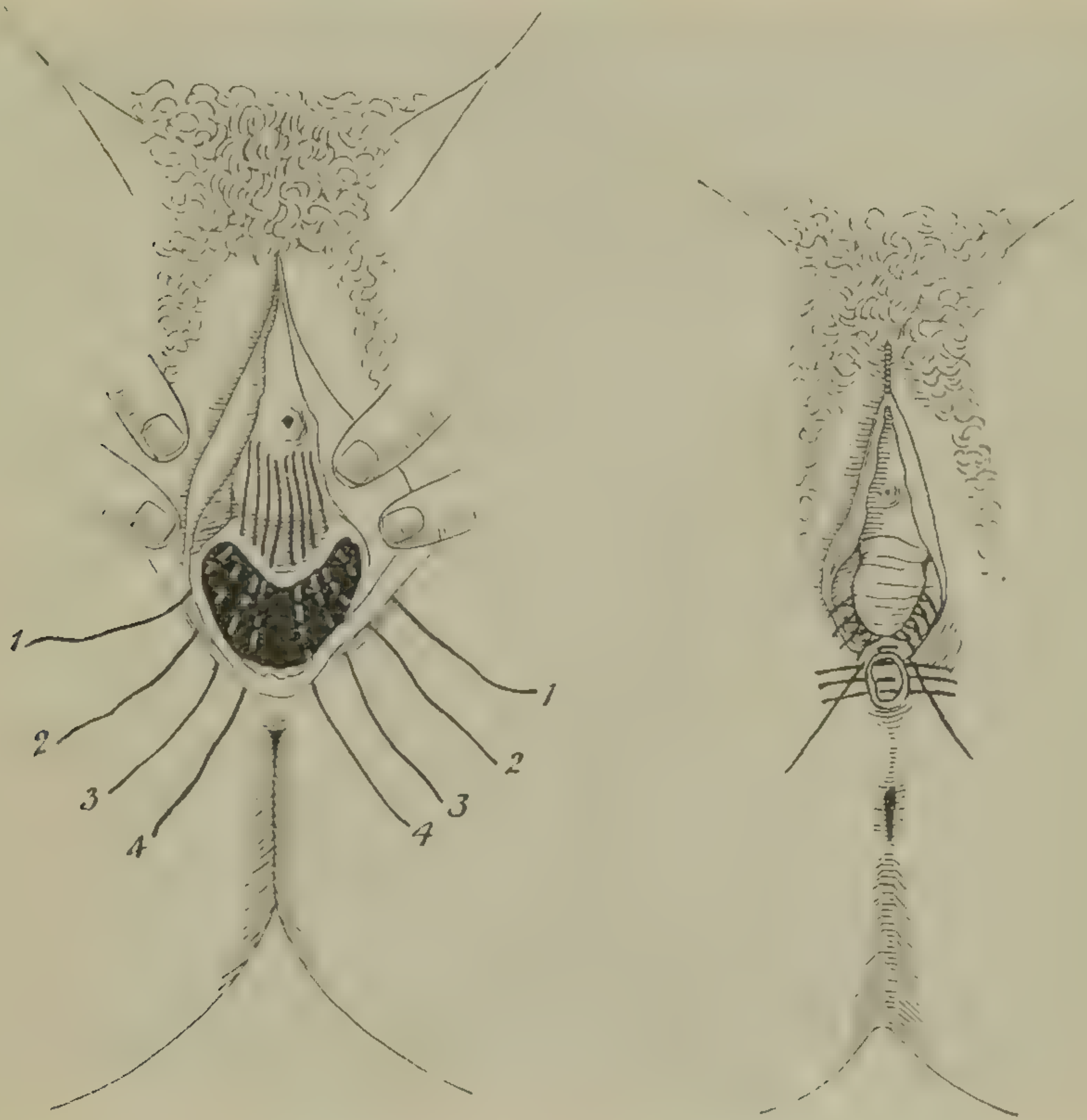


FIG. 52.—EMMET'S OPERATION FOR INCOMPLETE LACERATION OF PERINEUM.

gut, catgut or silk, the stitch entering, passing beneath and coming out a short distance from the denuded area. The following sutures of this triangle enter the vaginal mucous membrane just outside the denudation, incline toward the operator, emerge at the center of the denuded surface, reenter, incline from the operator and emerge from the mucous membrane of the other side, a little in front of the preceding suture. The other triangle is closed in the

same manner. The small area remaining after the closing of the triangles is closed by transverse sutures entering just outside the denuded surface, the needle being brought out in the center of the denudation, reentered and made to reappear on the opposite side. These sutures are frequently of silver wire or heavy catgut.

Hegar's Method for Posterior Colporrhaphy.—Denude a triangular flap, the summit at the crest of the rectocele, the angles

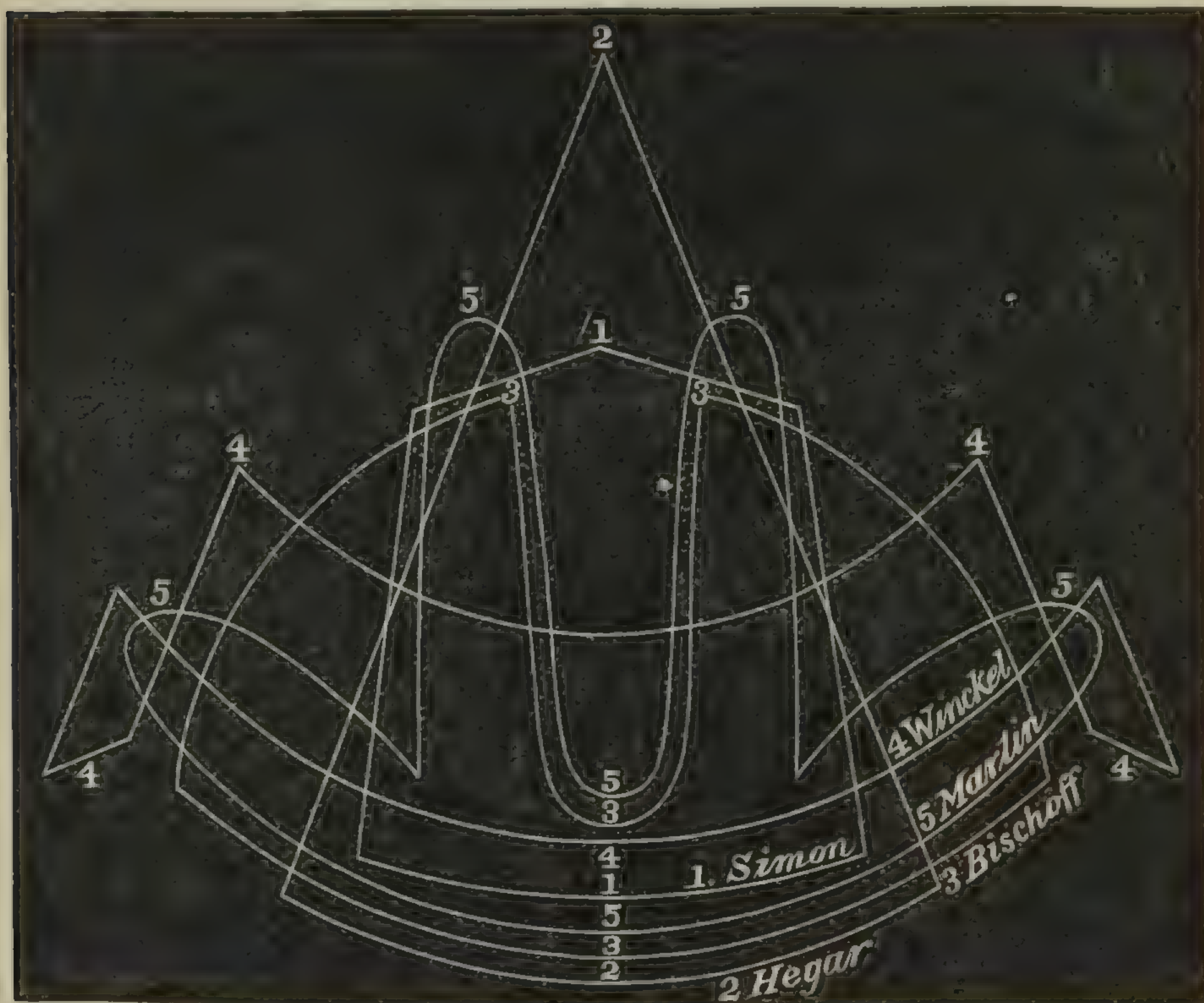


FIG. 53.—DIAGRAM SHOWING SHAPE OF AREAS OF DENUDATION MADE IN PRINCIPAL OPERATIONS FOR POSTERIOR COLPORRHAPHY AND RESTORATION OF THE PERINEUM.

of the base at the lateral margins of the remains of the hymen, and pass the sutures either across, entering slightly outside the denudation, or as many operators advise, using a continuous catgut suture. Various operators have advised various forms of denudation operations, the outlines of which can be seen in the accompanying figure.

By following carefully each line of Fig. 53, according to the

number before each operator's name, the shape of the denudation can be made out.

In all operations for partial rupture, the sole object in view is the restoration of the perineal body. In operations for the cure of complete lacerations the objects in view are first, restoration of the sphincter ani muscle, as near as possible to its original power; second, the closing of the rectal opening, and third, restoration of the perineal body. An opera-

tion for complete laceration can be done in the following manner: Two lateral triangles each representing half of the perineal body are denuded, one on each side, as in Emmet's operation for partial rupture, but now the line of denudation is prolonged backward along the edge of the rectovaginal septum. The guide for this lower denudation is the border of the rectal mucous membrane at the extremities of the torn muscle, as far as the upper end of the rent in the bowel. By the lower portion of the denudation, the torn ends (*i. e.*, the two lateral borders of the rectal rent) of the sphincter are vivified and made capable of adhesion after the process of healing is complete. The rule

for passing the first suture consists in the introduction of the needle as low down as the lower edge of the anus. From this point it passes through the rectovaginal septum, completely encircling the rectal rent, emerging on the opposite side by the side of the lower edge of the anus, thus closing the anal opening in somewhat the same manner as a purse string does a purse.



FIG. 54.—SURFACE DENUDED IN COMPLETE PERINEAL RUPTURE, AND FIRST TWO SUTURES FOR UNITING TORN ENDS OF SPHINCTER ANI IN POSITION.

The upper apices of the triangles which extend into the vagina are closed as in Emmet's operation for incomplete laceration.

The Tait-Saenger or Flap-splitting Operation for Lacerated Perineum.—The description of this operation is taken from Thomas and Mundé's admirable text-book on gynecology. The patient being placed, after the usual preparation, in the lithotomy position, the rectovaginal septum is split from side to side, beginning in the median line, by means of a pair of

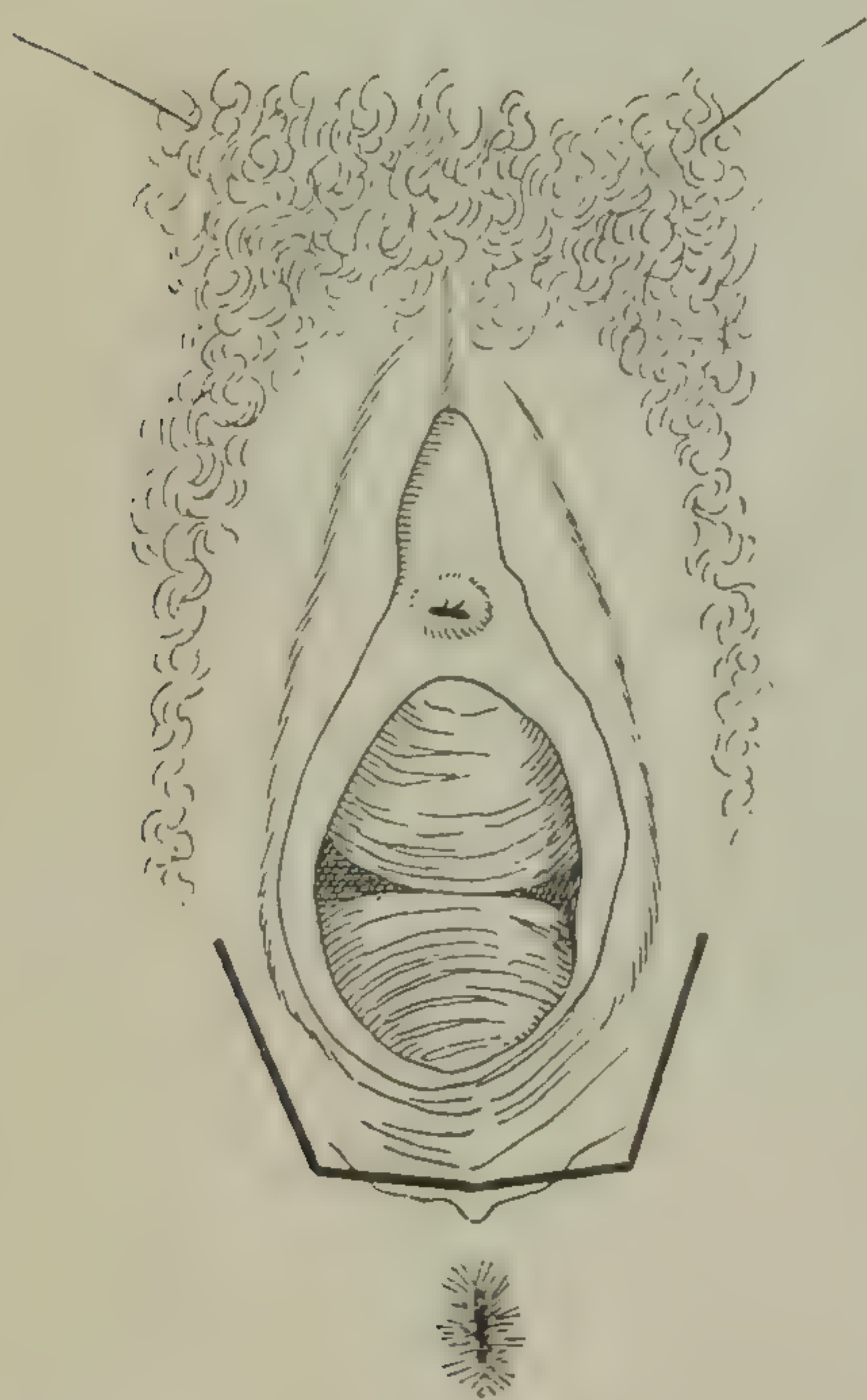


FIG. 55.—FLAP-SPLITTING OPERATION FOR INCOMPLETE LACERATION OF THE PERINEUM, LINES OF INCISION.

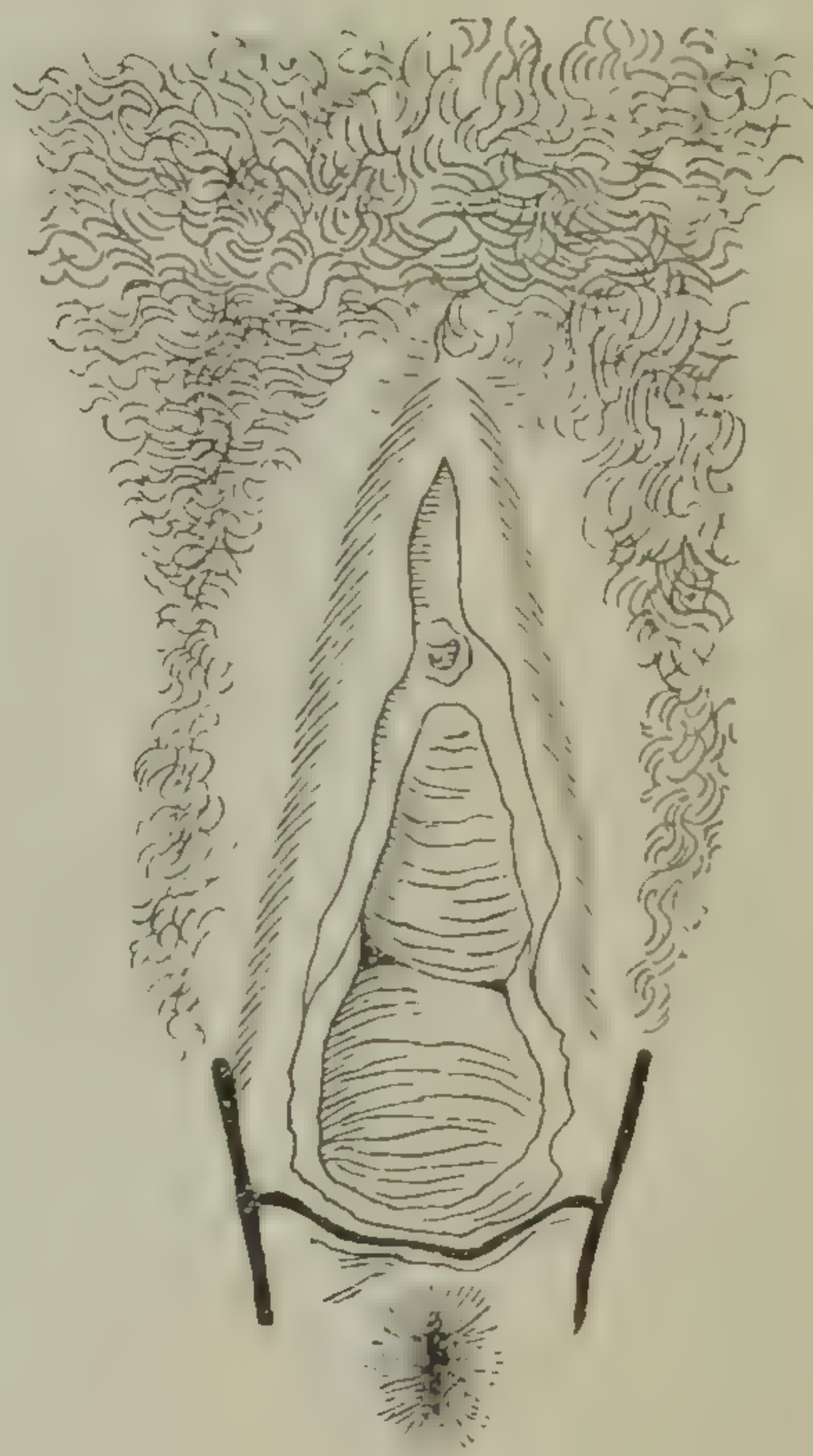


FIG. 56.—FLAP-SPLITTING OPERATION FOR COMPLETE LACERATION OF THE PERINEUM, LINES OF INCISION.

sharp-pointed scissors. If now the laceration is a complete one, the incision is carried up on either side of the upper border of the perineal cicatrix, the depth of the wound upward being not more than from a quarter to half an inch. The upper or vaginal flap is then drawn upward by means of a tenaculum or forceps, the lower or rectal flap downward by similar means, and the sutures are then passed, carefully concealed throughout, from the left side

of the patient to the right, beginning at the point nearest the anus, a straight or very slightly curved needle being used.

The sutures should be introduced just outside the edge of the wound, emerging at the same spot on the other side.* All the

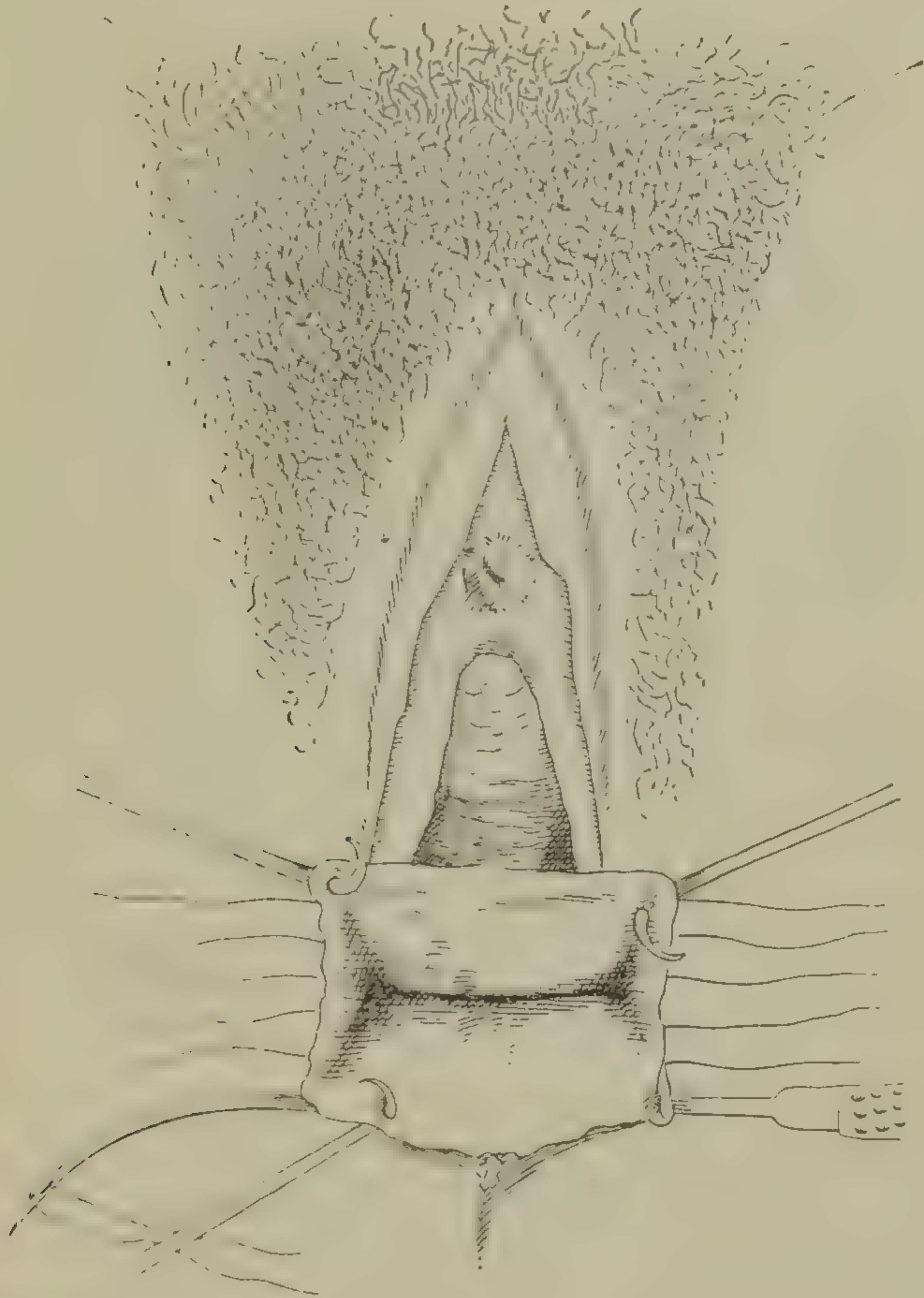


FIG. 57.—FLAP-SPLITTING OPERATION FOR LACERATED PERINEUM—APPEARANCE OF WOUND AND INTRODUCTION OF SUTURES.

sutures being introduced, they are tied, and any puckering of the posterior vaginal commissure is corrected by short interrupted catgut sutures.

* According to Tait's original operation, the sutures were entered just within the wound.—W. H. W.

The operation for complete laceration differs only in that, on either side of the transverse incision which splits the rectovaginal septum, a downward and outward incision is carried just beyond the edges of the separated sphincter ani muscle. The flaps are held apart upward and downward, and the first suture, beginning from behind, is inserted just outside and below the edge of the torn sphincter ani and brought out exactly at the same spot on the opposite side. The other stitches are the same as in the incomplete.

Regimé of Patients Before and After Perineal Operations.—Before operation, the patient should be fed upon animal food and broths principally, with potatoes or wheat foods. During this time it is of great importance that the bowels should be completely evacuated twice a day, for at least a week. For this purpose a compound cathartic pill, or a compound rhubarb pill, two or three times a day, will be found of use. After the operation, animal broths alone should be taken as nourishment. Milk, which creates scybala in the intestines, should be avoided. For two or three days after the operation, the bowels should be kept locked up, after that time they may be opened by a mild laxative. Where it is necessary to give enemata after the operation, the rectal tube used should be of small size and passed by the physician himself, carefully backward, so as not to tear open the recently united rectovaginal septum.

INFLAMMATION OF THE VAGINA (VAGINITIS).

Vaginitis may be divided into simple, gonorrheal, granular, adhesive, emphysematous, vesicular, and cystic.

Causes.—*Predisposing.*—Disordered states of the general system, such as anemia, chlorosis; systemic conditions producing pelvic congestions, such as pregnancy, abdominal tumors, cardiac or pulmonary diseases.

Exciting.—Friction of foreign bodies, irritating discharges from the uterus, injections of irritating substances, foreign bodies, masturbation, parasites, and excessive coition or in unnatural positions.

Pathology.—In simple and gonorrheal, in the acute stage, redness and hyperemia of the vaginal canal, with swelling of the

papillæ; secretion at first serous, quickly becoming purulent; an infiltration of small cells of the epithelial structures takes place, accompanied by some exfoliation of cells. If the disease continues, the infiltration and exfoliation may extend to the deeper layers. In severe cases, particularly acute attacks, in the course

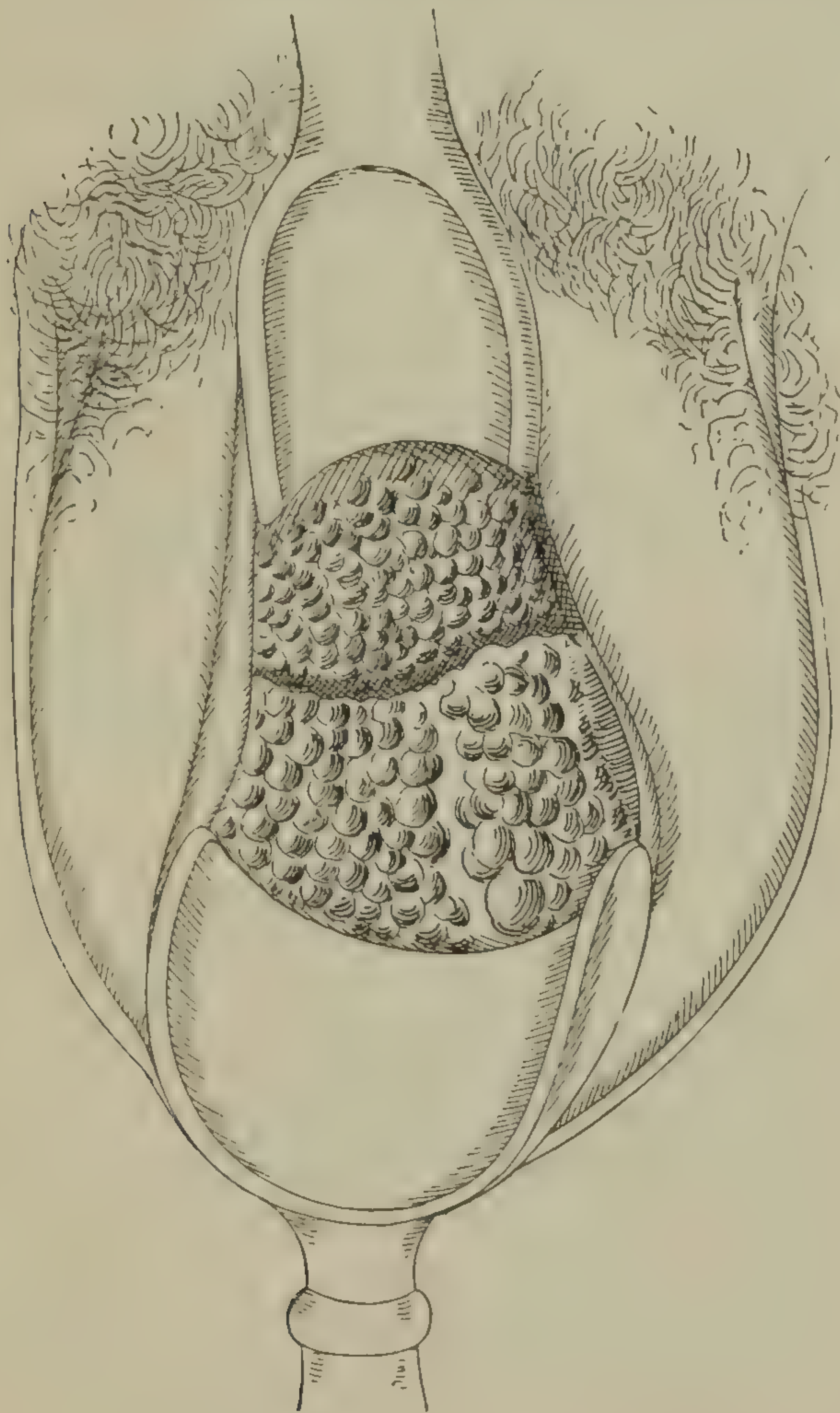


FIG. 58.—GRANULAR VAGINITIS.

of chronic inflammation, in the hyperemia of pregnancy, etc., the papillæ undergo the same changes, but to a greater degree.

GRANULAR VAGINITIS.—This consists of an exfoliation of the epithelium, the enlarged papillæ resembling a mass of granulations.

ADHESIVE VAGINITIS occurs in children and in old age. The papillæ here are smaller, and the epithelial layer thinner. The inflammation occurs most frequently in patches with smooth surface and scanty secretion. Ecchymotic spots may be seen. An exfoliation of the epithelium occurs in patches, and the vaginal surfaces may adhere together.

EMPHYSEMATOUS VAGINITIS occurs mostly in pregnant women. The inflammation is attended with the development of gas in the connective tissue and lymphatics of the upper end of the vagina. May be accompanied by desquamation and ulceration.

VESICULAR VAGINITIS.—Small vesicles form in the inflamed spaces; these open and leave a sharply defined edge of raw surface.

FOLLICULAR VAGINITIS occurs in the upper part of the vagina about the fornices; it consists of inflamed and enlarged follicles.

According to many modern authors, vaginitis is regarded more in the nature of a dermatitis than an inflammation of a true mucous membrane, the vaginal membrane being regarded as being in structure more like skin than mucous membrane, except at its upper part, where it assumes more nearly the latter character.

Symptoms.—Bearing-down sensations in the vagina, followed by a desire to urinate frequently. Itching and burning pain about the vaginal entrance. Backache and sensation of weight in the pelvis. Some rise of temperature. Loss of appetite, nausea, and hysterical symptoms sometimes present themselves. In chronic cases, the symptoms are much the same but are less prominent. The gonorrheal form may be followed by extension of the inflammation into the uterus, tubes or ovaries, and is *very apt* to be followed by urethritis or cystitis.

The **diagnosis** of vaginitis can be made from the pathology. The gonorrheal form is apt to be serious in its consequences; it differs from other forms—

1. In its acute and pronounced onset.
2. In the greenish or greenish-yellow discharge.
3. The probable presence of gonococci upon microscopic examination.
4. Occasional presence of gonorrheal warts or buboes.

5. Is very apt to be followed by, or accompanied by, urethritis or cystitis.

Treatment.—In the acute simple form, quiet, not necessarily in bed, restricted diet. For the itching, warm alkaline sitz baths and irrigation of the vagina with hot water containing a saline solution one-half to one per cent. borax, 3j to the quart, or subacetate of lead. Irrigation should always be given with the patient in the recumbent position, and should be repeated every two or three hours for fifteen minutes each time. Some authorities advise dusting the vulva with bismuth, or other mild powder, after each injection. If the disease has become chronic, mild antiseptic douches, such as bichlorid of mercury, 1 : 3000, or creolin, 3j to the quart, are advised.

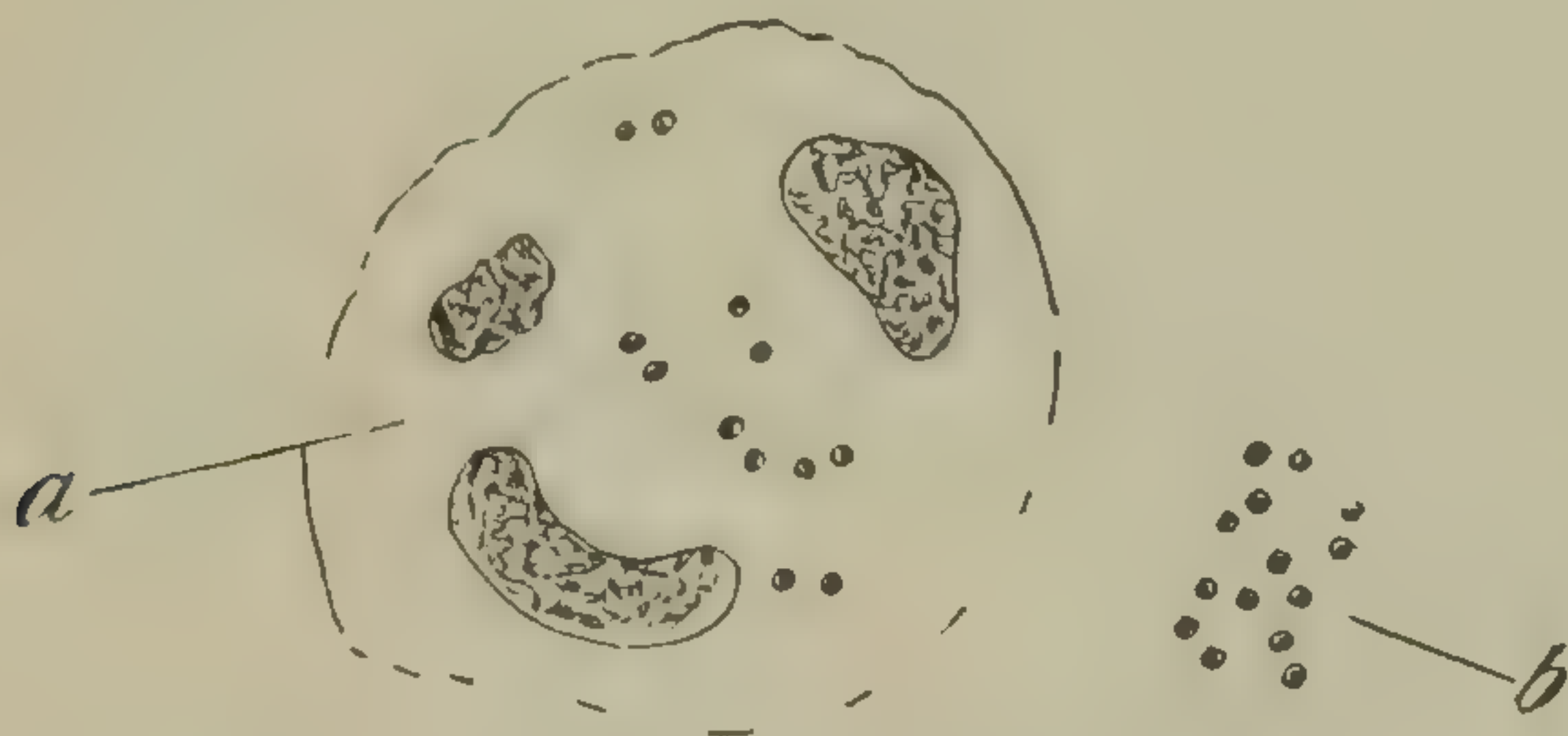


FIG. 59.—GONOCOCCUS OF NEISSER.
a. Within pus-corpuscle. b. Outside pus-corpuscle.

In cases of gonorrheal vaginitis the patient should be put to bed, and kept on a restricted diet, alcoholic stimulants being particularly avoided. The bowels and bladder should receive proper attention. The vagina should be irrigated several times a day with hot bichlorid solution, 1 : 3000, or creolin, 3j to the quart. Insufflation with iodoform followed by the insertion of a tampon containing iodoform and chloral, each one part, glycerin four parts, is recommended by some writers.

Adhesive Vaginitis of senile type may be treated by mild antiseptic douches, followed by the insertion of strips of lint soaked in a five per cent. carbolized oil or zinc oxid ointment of similar strength. In very sensitive cases, the lint strips may be smeared with cold cream or almond oil. When the disease occurs in child-

dren, dilatation has in some cases been practiced with success, where adhesion of the vaginal walls has taken place.

The treatment of *cystic vaginitis* consists in puncturing the small cysts about the cervix and after evacuating their contents applying tincture of iodine. Vaginal douches of bichlorid of mercury, 1 : 2000, or creolin, should be used twice a day.

MALIGNANT NEOPLASMS OF THE VAGINA.

The vagina may be the seat of sarcomata and carcinomata in any form. The disease may occur either primarily or secondarily, the former however, is rare. Sarcoma appears either as a rounded, circumscribed tumor originating from the submucous tissue, or a more superficial, diffused degenerative change in the vaginal tissue. It appears most commonly in the posterior vaginal wall. Primary cancer of the vagina appears either as papillary epithelioma, the most frequent, or as diffuse carcinoma, infiltrating the vaginal wall generally. This latter form is very rare.

Vaginal cancer presents the same microscopical appearances as in other places, and the diagnosis must in many cases be made by this means.

Symptoms.—Cancer appears usually in persons at or past the period of middle age, from thirty to forty-five years. The important symptoms are hemorrhage; often appearing during coition or while straining at stool, the peculiar watery discharge containing shreds of reddish tissue and foul smelling; pain always present but subject to paroxysms. Where the disease has progressed for some time, symptoms arising from obstruction and stenosis may appear.

Treatment.—The diseased tissue should be removed as completely as possible, either with a sharp curette, the galvanocautery, or corrosives. Equal parts of pepsin and salicylic acid, either in suppositories or dry powder, should be applied to the ulcer and held in place by means of a tampon. As this application is irritating the surrounding parts should be protected by zinc ointment or cosmolin.

Where there is considerable hemorrhage, tampons of gauze dipped in a saturated solution of alum, or cotton dipped in Monsel's

solution and dried, are recommended. Suppositories of chloral and tannic acid are of use. Douches of hydrogen peroxid or permanganate of potash are useful to do away with the fetor. For the pain, opium in various forms.

FIBROMATA AND LIPOMATA.

The former are occasionally found, the latter are very rare. When fibrous tumors appear in the vagina, they are usually in the form of fibromiomata. They may be either situated in the vaginal walls or connected with them by a pedicle. They resemble cysts, except that they are nonelastic and contain no fluid.

Treatment.—When growing in the vaginal wall they should be enucleated and the walls closed by sutures. Polypoid growths should be incised and the pedicle ligated or treated with the cautery.



FIG. 60.—LOCATION OF VARIOUS FORMS OF FISTULÆ.
1. Vesicouterine. 2. Vesicouterine-vaginal. 3. Vesicovaginal. 4. Urethrovaginal. 5. Rectovaginal. 6. Rectolabial. 7. Fistula in ano. (After Thomas and Mundé.)

GENITAL FISTULÆ.

Definition.—Genital fistulæ are abnormal avenues of fecal or urinary discharge, by means of which some portion of the urinary tract or the bowel communicates with the genital tract or the exterior of the body ("American Text-book of Gynecology").

Varieties.—Vesicovaginal, urethrovaginal, urcterovaginal, vesicouterine, ureterouterine, and vesicouterovaginal. Of these the most common is the vesicovaginal.

FECAL FISTULA.

Rectovaginal and rectolabial. The former is the more common.

Causes.—By far the most common cause is sloughing due to

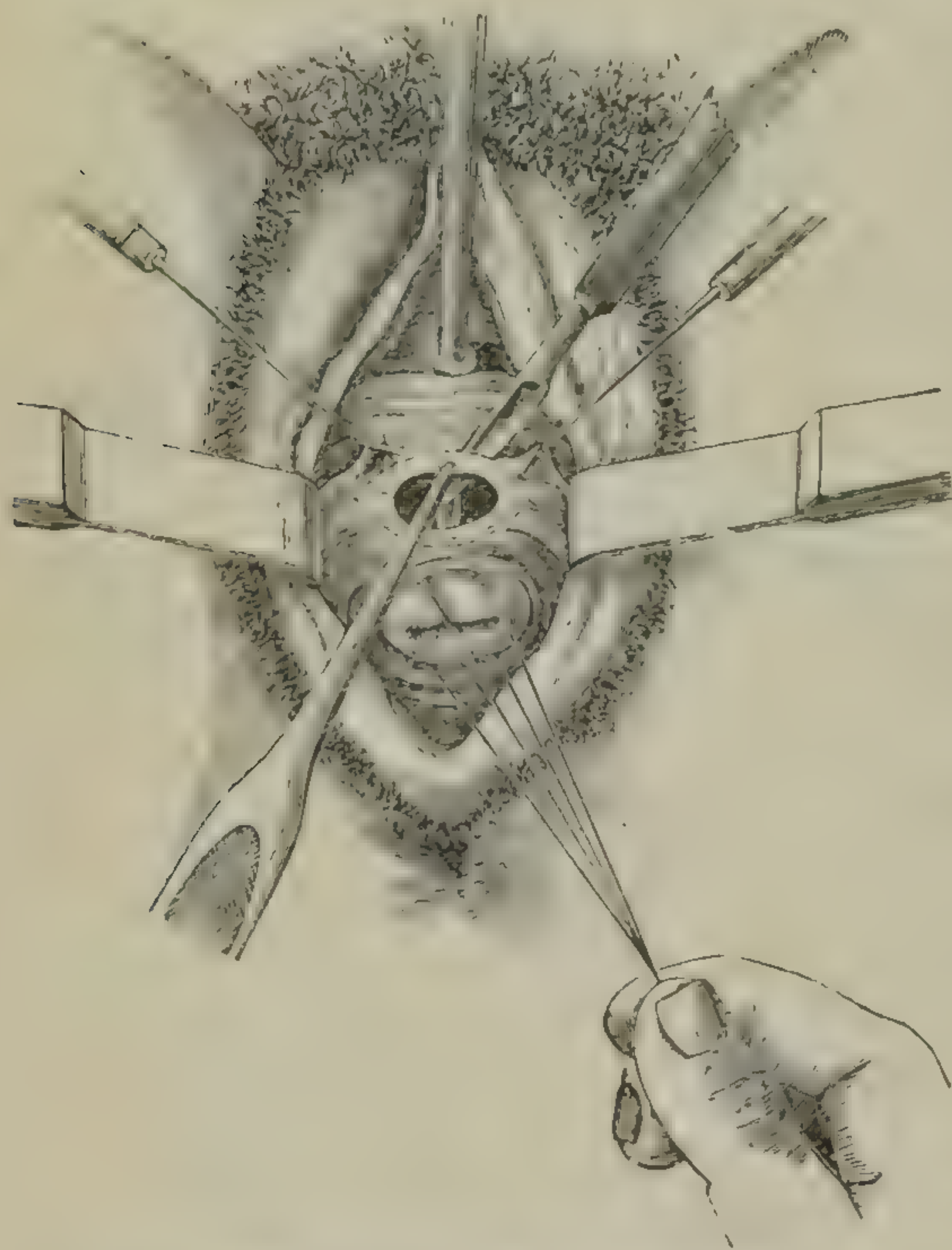


FIG. 61.—OPERATION FOR VESICOVAGINAL FISTULA. VIVIFYING EDGES OF FISTULA.

necrosis of the tissues, produced by long continued pressure during labor. It may be produced by forceps or craniotomy. Pessaries may be a cause. The vaginal walls may also be eaten through by ulcerations, abscesses, cancer or syphilis, etc.

Symptoms of Vesicovaginal Fistulæ.—A constant dribbling of urine when the patient walks about. Frequently a urinous odor can be detected. Later, inflammation of the external genital organs takes place. Phosphatic concretions are apt to form in the

lower part of the vagina. Erosions and adhesions of the vaginal walls may occur.

Diagnosis.—Place the patient in the Sims' position and draw down the posterior vaginal wall by means of a Sims' speculum and the fistula may appear to view. If this fails, distend the bladder by means of a catheter, tube and funnel, with some antiseptic colored fluid, such as creolin, 3j to the quart. If a fistula is present, the solution will, of course, find an exit by this means.

The diagnosis should be verified by inserting a probe through the fistula.

Treatment of Vesicovaginal Fistula.—Where erosions and phosphatic concretions exist, the vagina should be irrigated with douches of weak boric acid solution, about 3j to the quart. Erosions should be touched with a solution of silver nitrate, grs. v-x to the ounce. Contractions of the vagina due to scar tissue should be removed by dividing the latter so as to amply expose the fistula.

Operations for the cure of vesicovaginal fistula should be done as follows: The patient should be in the lithotomy position, the thighs well flexed, the buttocks resting on a perineal pad. The posterior wall of the vagina is then retracted by a Sims' speculum. The first step in the operation consists in marking with a sharp knife the outer limit of the area around the fistulous opening to be

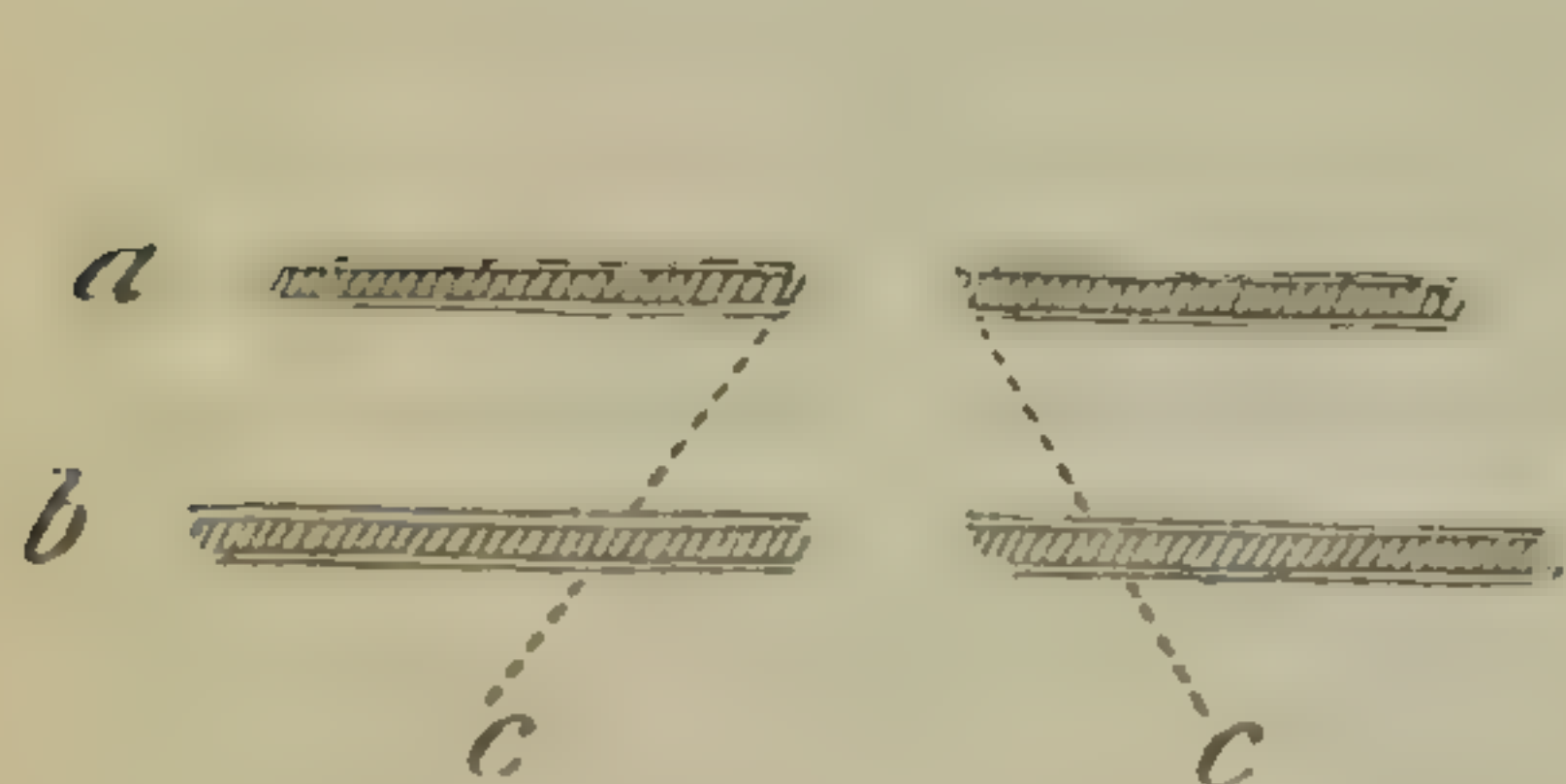


FIG. 62.—SHOWING BEVELING OF EDGES.

a. Vesical border. *b.* Vaginal border. *c, c.* Incision.

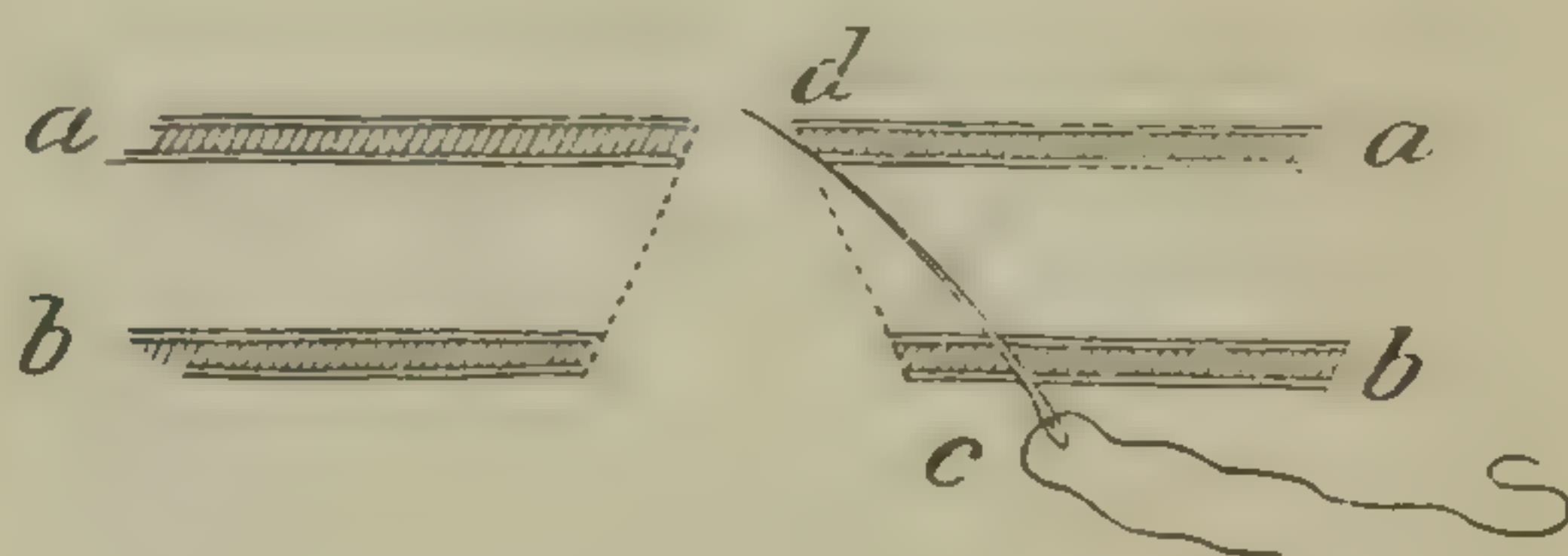


FIG. 63.—COURSE OF THE NEEDLE.

a. Vesical border. *b.* Vaginal border. *c.* Point of entrance of needle. *d.* Point of exit of needle.

denuded. This should be from one-fourth to one-eighth of an inch from the edge of the fistula. A piece of the tissue thus outlined is then caught with a tenaculum or a pair of long rat-tooth forceps, and lifted slightly. The piece of tissue is then denuded with knife or curved scissors down to the mucous membrane of the bladder, which latter is not disturbed. It is generally recommended that the denudation be beveled from the vaginal opening inward toward the bladder.

The sutures should be carried by means of a small curved needle. The first may be placed at either end or in the end of the opening.

It is now customary to use two sorts of sutures; silk-worm gut for the deep sutures and fine silk or catgut for the superficial. Silver wire is used occasionally for suturing material. The silk-

worm gut sutures should enter the vaginal mucous membrane from one-eighth to one-sixteenth of an inch from the edge of the denudation and come out at the margin of (but should not pierce) the mucous membrane of the bladder, then reenter at the margin on the opposite side of the fistula, and come out finally on the vaginal mucosa at a point corresponding with the point of entrance (see Fig. 63). Five or six similar sutures to the inch should be inserted. The silk-worm gut sutures should then be tied, care being taken to avoid strangulation of the tissues by tying them too tightly. Any pouting of the tissues after tying the deep sutures can be avoided by approximating the edges with the fine silk sutures. The vesical mucous membrane should never be pierced by the needle, as the point of puncture may become the seat of a subsequent fistula. In circular fistula, it is best to draw the upper border of the vaginal tissue down to the lower. In long oblique fistulæ, the walls should be approximated in the direction of their long axes. In circular, it is often necessary to cut out a V-shaped piece at each end of the fistula to aid in accurate approximation. The patient should be kept in bed until the fistula heals. For the first three days, the patient should be catheterized about every three hours; after this time she may void urine voluntarily. The vagina should be lightly packed with gauze. Some operators prefer to leave a self-retaining catheter in the bladder in order that it may be kept constantly empty. Opium should be given if there is much pain. The bowels should be moved by an enema on the third day.

URETHROVAGINAL FISTULÆ.

These usually occur in consequence of injury occurring in the course of parturition. They are found chiefly in the inner half of the urethra.

Treatment.—The operation is similar to that for vesicovaginal fistula. If the fistula is very large, it is advised that a wedge be cut out of the under part of the urethra, the fistula being included in the base of the wedge and the denuded surfaces approximated by silk sutures extending down to the mucous membrane, the sutures being close together.

VESICOUTERINE FISTULA.

Causes.—According to Emmet, this condition is caused by laceration of the cervix extending into the bladder. The operation consists in splitting the cervix up to the fistula. The edges of the fistula are denuded and the whole brought together as in the operation of trachelorrhaphy.

RECTOVAGINAL FISTULA.

Causes.—The most frequent cause is necrosis of tissue from pressure during childbirth. Careless use of instruments during delivery. Syphilis and cancer. Cancer of the cervix frequently causes fistula in the upper part of the vagina. It may also arise from incomplete union after perineal operations.

Treatment.—A broad denudation extending from the sound tissue down into and around the fistula. A few deep sutures, which are to be of silk-worm gut, are passed from side to side, as in vesicovaginal fistula. The remaining sutures may be of silk. The vagina should be loosely packed with iodoform gauze. The sutures should be removed on the eighth day. Silver wire is sometimes used for sutures. When the fistula is near the vulva, some operators advise that the sphincter ani and perineum be divided up to the fistula. The latter is dissected out and the parts then closed, as in complete laceration of the perineum.

ANATOMY OF THE UTERUS.

The uterus is a hollow muscular organ, situated in the pelvis, between the bladder anteriorly, and the rectum posteriorly. It is the organ in which the fecundated ovum is retained and developed during embryonic life, and is, at the time of parturition, the principal agent in the expulsion of the developed fetus.

Shape.—The uterus is pyriform or triangular in shape, with its apex below.

Size.—The size is variable; depending (1) on the period of life; increasing at puberty and diminishing in old age. (2) Certain physiological or pathological conditions, such as pregnancy, menstruation, endometritis, etc. The average length of the uterus is three inches, its width two inches, and its thickness one inch.

Divisions.—The uterus is divided into the fundus, body and cervix. The fundus is the upper surface or top of the organ between the attachments of the oviducts. The body or corpus, consists of that portion between the internal os and the entrance

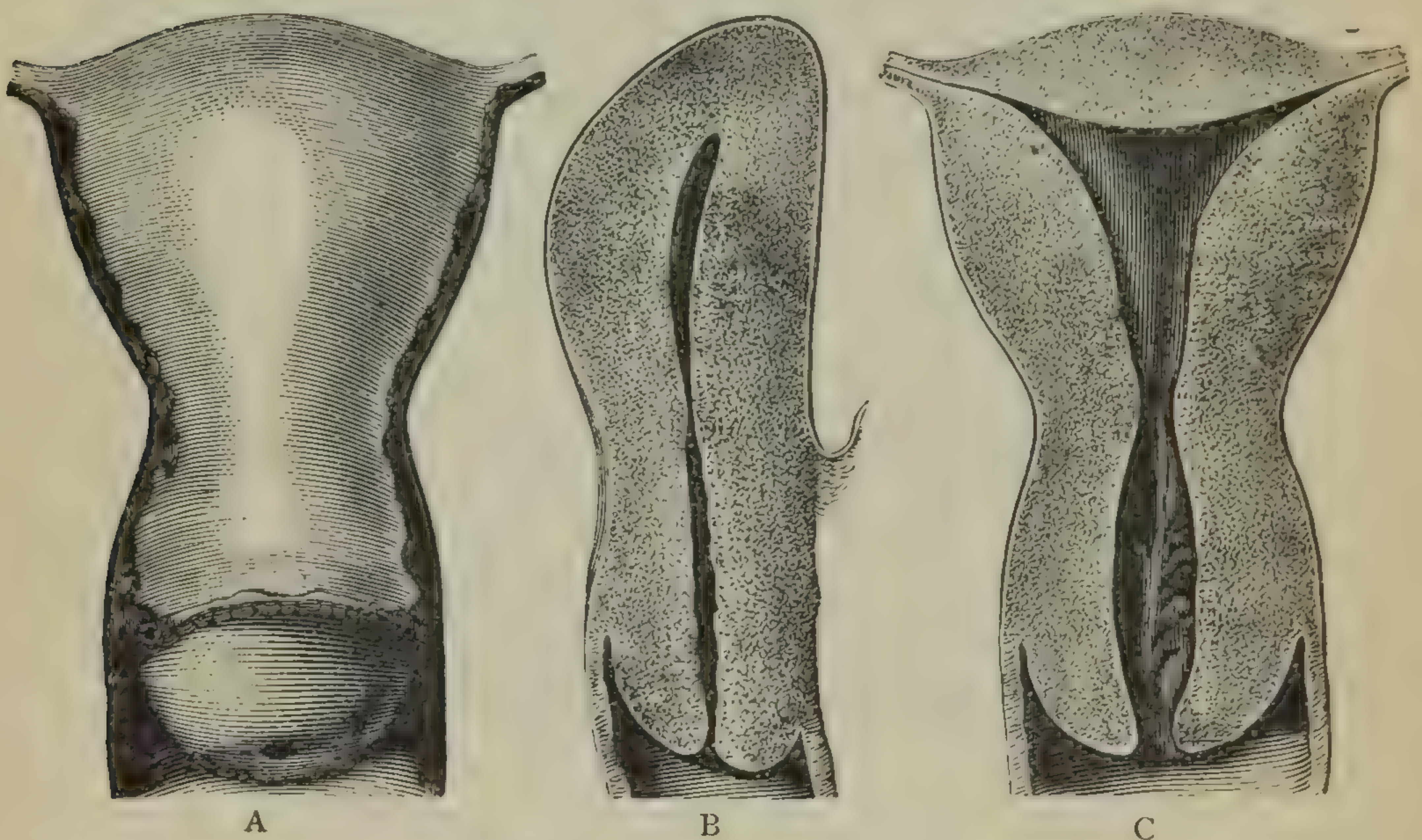


FIG. 64.—VIRGIN UTERUS.

A. Anterior view. B. Median section. C. Lateral section.

of the oviducts. The cervix or neck, consists of the inferior and narrowed portion between the internal and external os. The cervix is nearly as long as the body and consists of—

1. The infravaginal portion, extending into the vagina.
2. The supravaginal portion, above the vaginal insertion.

The cervical canal communicates with the vagina by means of the external os, and with the cavity of the uterus by the internal os.

Generally speaking, the axis of the uterus is perpendicular to the axis of the vagina, or at right angles to a line drawn from the symphysis pubis to the promontory of the sacrum. Normally, the uterus has a great range of mobility, but lies slightly ante-flexed, the os externum looking downward and backward. When a woman lies in the dorsal position, the axis should point toward the feet of the examiner. The uterus also inclines somewhat to the left side, which brings the oviduct with its accompanying

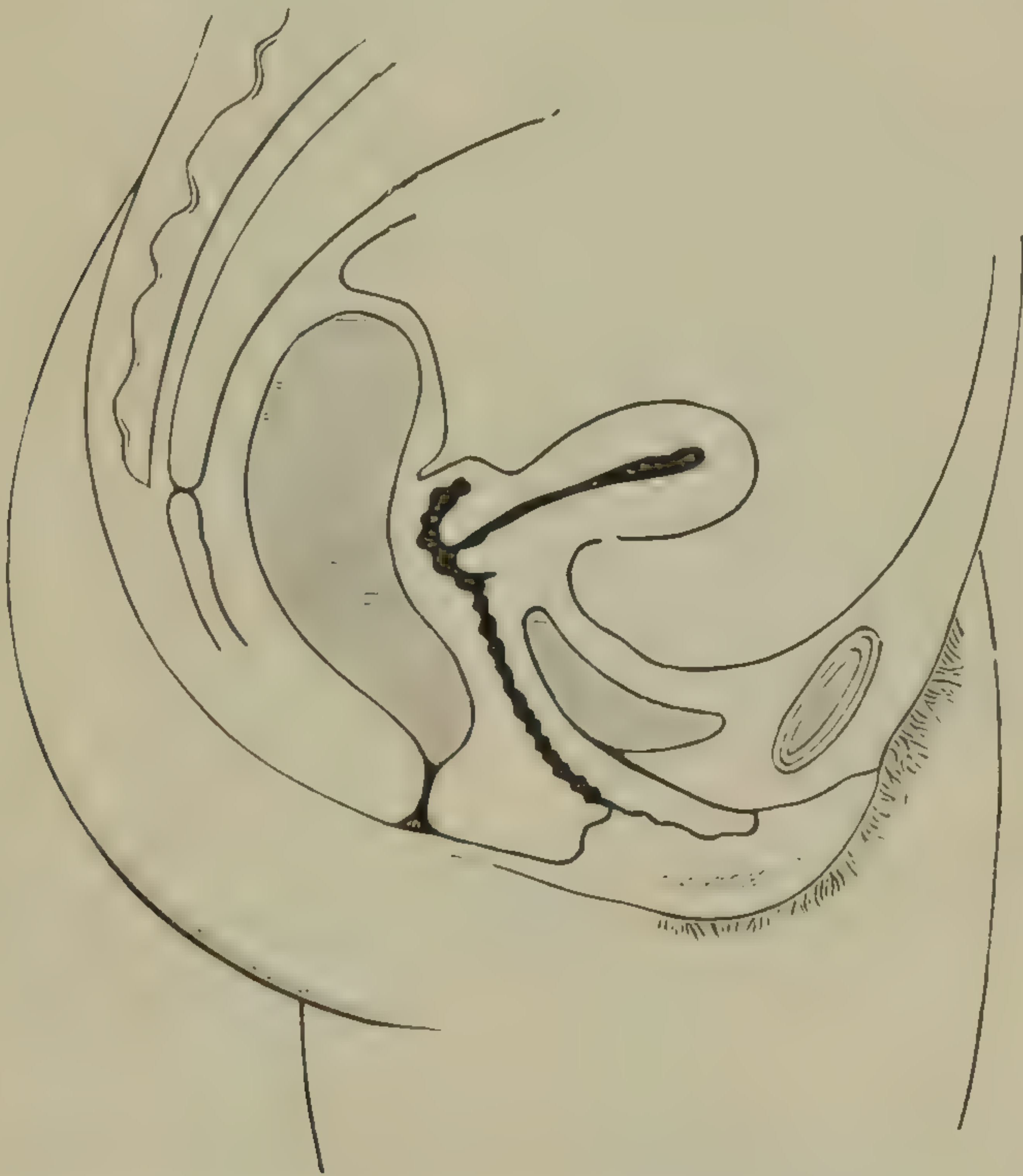


FIG. 65.—VERTICAL SECTION OF THE PELVIC VISCERA OF AN ADULT VIRGIN.

ovary nearer the symphysis on that side, hence it is easier to feel the left ovary on examination.

The uterus is maintained in position by—

1. The uterine ligaments.
2. Loose cellular and fatty tissue in the pelvic cavity.
- 3 By the support of adjacent organs
4. By intraabdominal pressure.

Structure.—The uterus is composed of three coats, an outer serous, a middle muscular, and an inner mucous coat.

The *serous layer* is simply a continuation of the peritoneum. It covers the whole of the posterior surface and three-fourths of the anterior surface of the body of the organ.

The *muscular layer* consists of thick bundles of unstriated muscular fibers which hold in their meshes a rich supply of lymphatics, blood vessels, and nerves.

The *mucous layer* lining the body of the organ is from $\frac{1}{20}$ to $\frac{1}{12}$

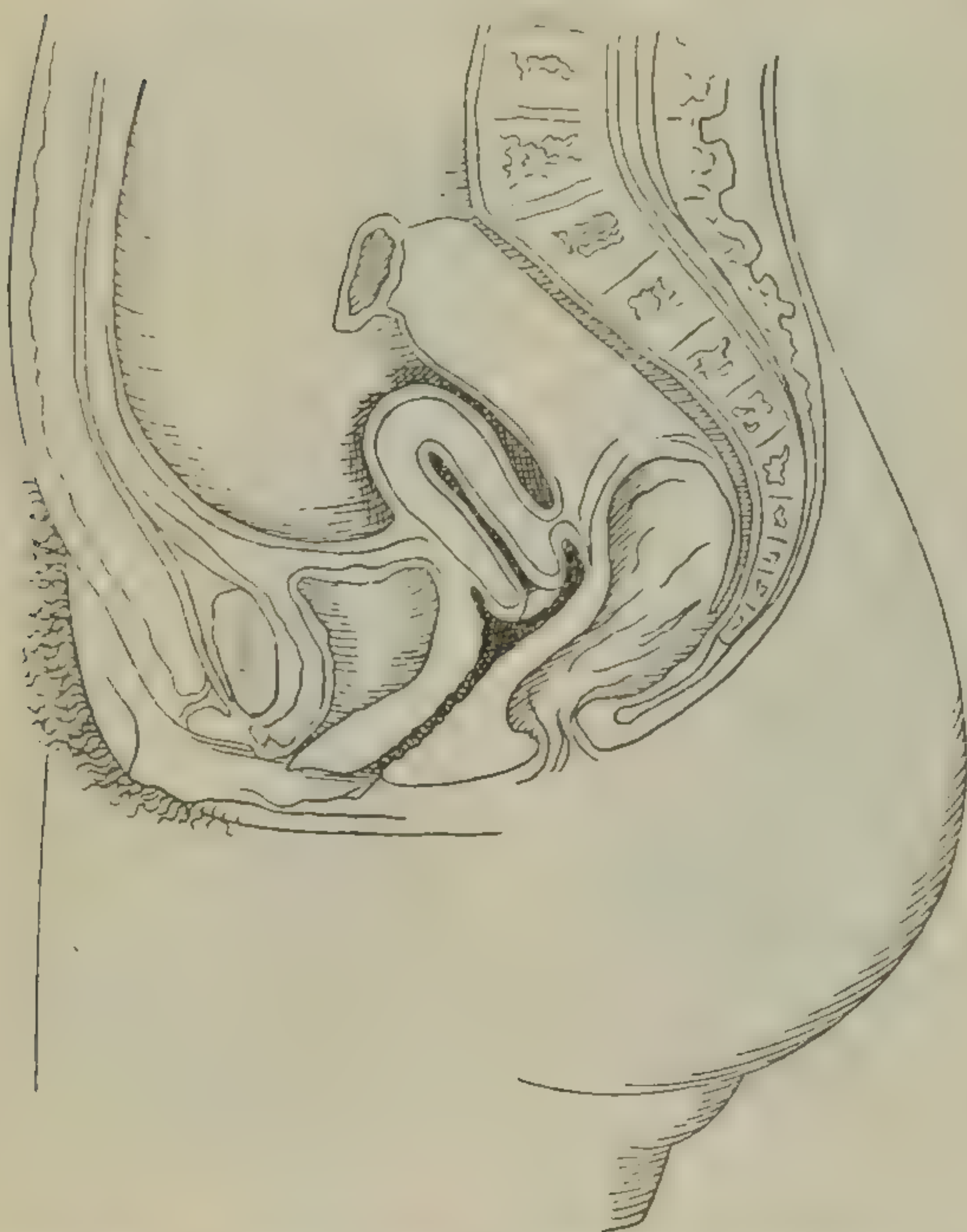


FIG. 66.—TOPOGRAPHY OF NORMAL FEMALE PELVIC ORGANS.

of an inch in thickness and is composed of a single layer of ciliated columnar epithelium and a basement layer. It is firmly united to the fibrous tissue of the muscular layer. A large number of glands are found in this membrane; some are simple, others have a bifurcated base. These glands dip down obliquely and end in the middle layer. They are known as **utricular glands**.

The mucous membrane lining the cervix is quite different; like that of the body it is covered with a layer of ciliated columnar

epithelium, but in addition to this it is thrown into many folds, which gives it a rugous appearance. The name of *arbor vitæ* has been given to the collection of folds. In the cervical mucous membrane are found the Nabothian glands; these are small glands of the racemose variety. When their ducts become occluded they give rise to small cysts known as Nabothian cysts. The mucous membrane covering the *external surface* of the infravaginal portion of the cervix is covered with squamous epithelium and contains no glands.

Arteries.—The uterine, from the internal iliac, reaches the cervix between the layers of the broad ligament, supplies it, and forms an anastomosis in the muscular coat of the organ, uniting at the fundus with branches of the ovarian artery. The circular artery is a small branch of the uterine; it encircles the cervix and should be remembered in operations on this part of the uterus.

Veins.—The accompanying veins of the arteries; they are very large but less tortuous than the arteries. They terminate in the uterine plexuses at the sides of the organ.

Lymphatics.—These are very numerous and increase in number during pregnancy. The lymphatics of the cervix and vagina open into the sacral and internal iliac glands, while those of the fundus and body run between the folds of the broad ligament, receive the lymphatics of the ovaries and Fallopian tubes, and accompanying the ovarian vessels, empty into the lumbar glands.

Nerves.—The nervous supply of the uterus is derived from the third and fourth sacral, from the ovarian and hypogastric plexuses of the sympathetic.

DISEASES OF THE UTERUS.

The various affections of the uterus may for convenience, be grouped under three heads: Deviations from the normal, (1) in position; (2) in function; (3) in structure.

DEVIATIONS IN POSITION.

Under normal conditions, the uterus in its position between the bladder and rectum is a freely movable organ, its position changing somewhat with respiration, distention of the bladder and rectum and slightly with the position of the entire body. It lies lightly forward on the bladder, the body ascending when the latter organ is distended with urine, and descending to a certain extent when the bladder is empty.

The factors most potent in holding the uterus in its position and at the same time contributing to its movability are five in number:

1. The uterine ligaments, which may be described as follows :—
 (a) The round, extending from each uterine cornu to the labia majora. (b) Uterovesical, bands of pelvic fascia, and uterine muscular tissue, connecting the bladder with the junction between the corpus uteri and the cervix. They prevent the displacement of the cervix backward. (c) Uterosacral, prolongations of the hypogastric fascia and the uterovaginal tissue, extending from the posterior surface of the cervix, to be attached finally to

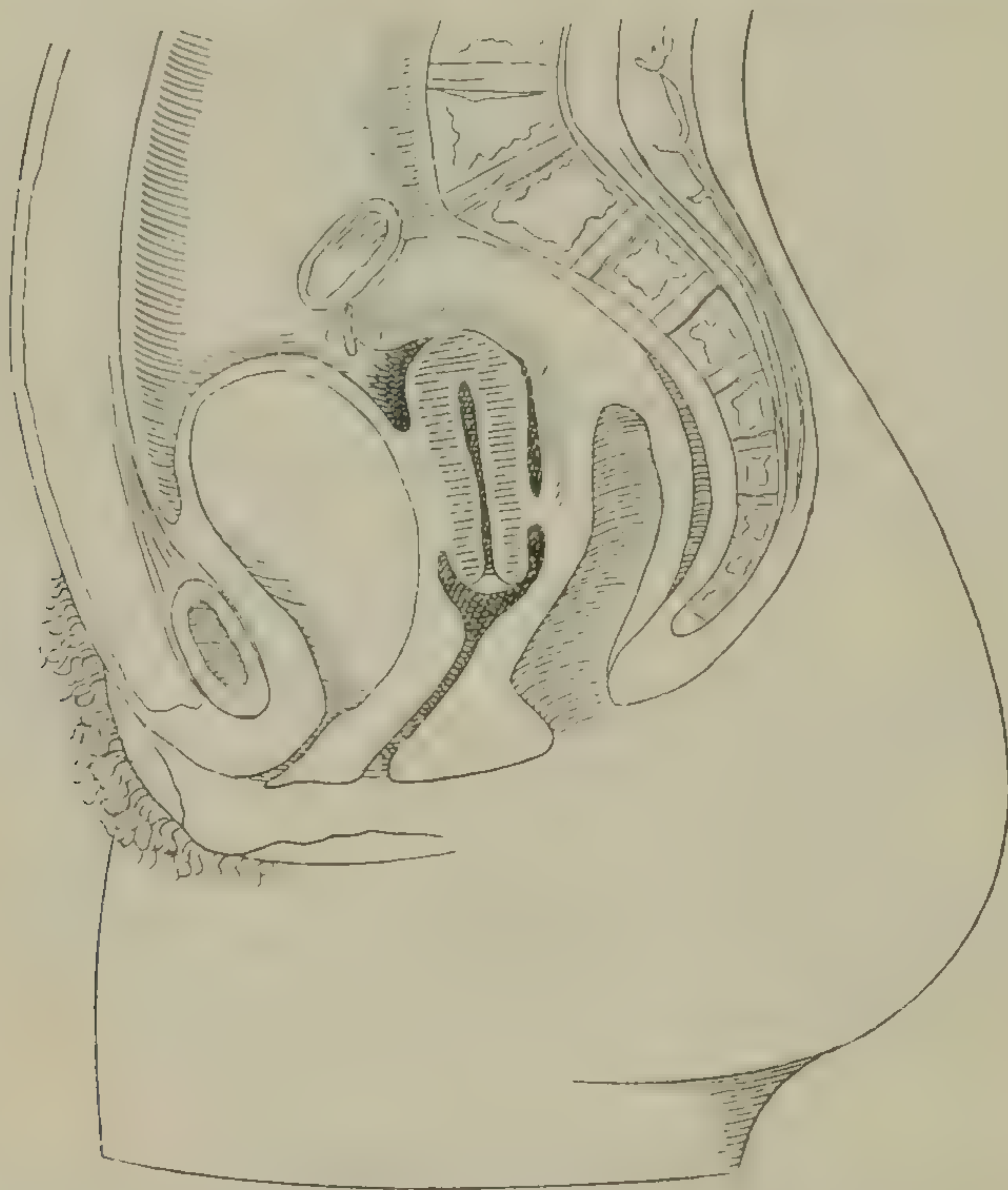


FIG. 67.—PELVIC ORGANS SHOWING POSITION OF UTERUS WITH BLADDER DISTENDED.

the sacrum. Their tendency is to prevent a too great movement of the cervix anteriorly. (d) Broad. These are folds of peritoneum enclosing areolar tissue, round ligaments, Fallopian tubes, and ovaries. They prevent displacements of the uterus laterally, anteriorly, and posteriorly.

2. The retentive power of the abdominal cavity.
3. Attachments to the areolar tissue of the pelvis.

4. Juxtaposition of the other organs, such as bladder, rectum, etc.
5. The pelvic floor and perineum.

The action of the latter has already been described.

The normal position of the uterus may be changed by various causes, such as, inflammations, tumors, relaxation of its ligaments, etc. It must be borne in mind however, that in order to be pathological, the changes in position must be of such a character

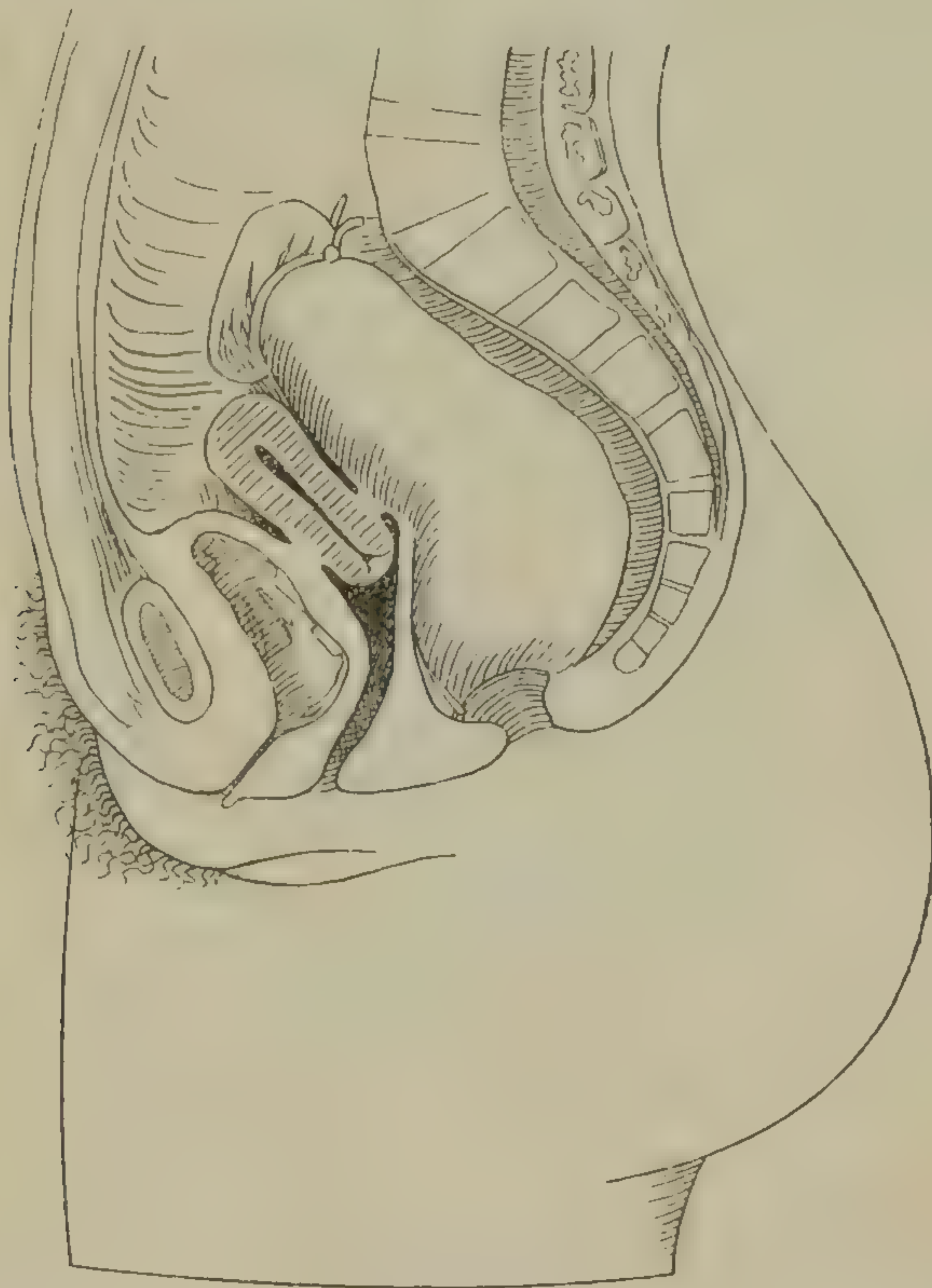


FIG. 68 — PELVIC ORGANS SHOWING POSITION OF UTERUS WITH RECTUM DISTENDED.

that the free movements of the organ are interfered with, and the malposition must be permanent unless corrected subsequently by treatment. The uterus may be changed from its normal position in the following manner. It may be elevated, depressed, the entire organ may be moved forward or backward or laterally, without changing the direction of the uterine axis or any part of it; it may be bent on itself anteriorly (anteflexion), or posteriorly (retroflexion); the whole axis of the uterus may be tipped forward (ante-

version), or backward (retroversion). When the entire uterus is depressed, the condition is known as prolapse.

ASCENT OF THE UTERUS.

Causes.—Any condition which causes the uterus to become too large to remain in the pelvic cavity. Among these causes may be named pregnancy, large fibroids, ovarian tumors with short pedicles, collections of blood or fluid or solid tumors in the vagina. As the condition is never one of primary disease, the treatment must be directed to the cause.

ANTERIOR, POSTERIOR, AND LATERAL DISPLACEMENTS OF THE UTERUS.

The uterus may, through adhesions or tumors, be drawn en masse, forward, backward, or to either side, without changing the

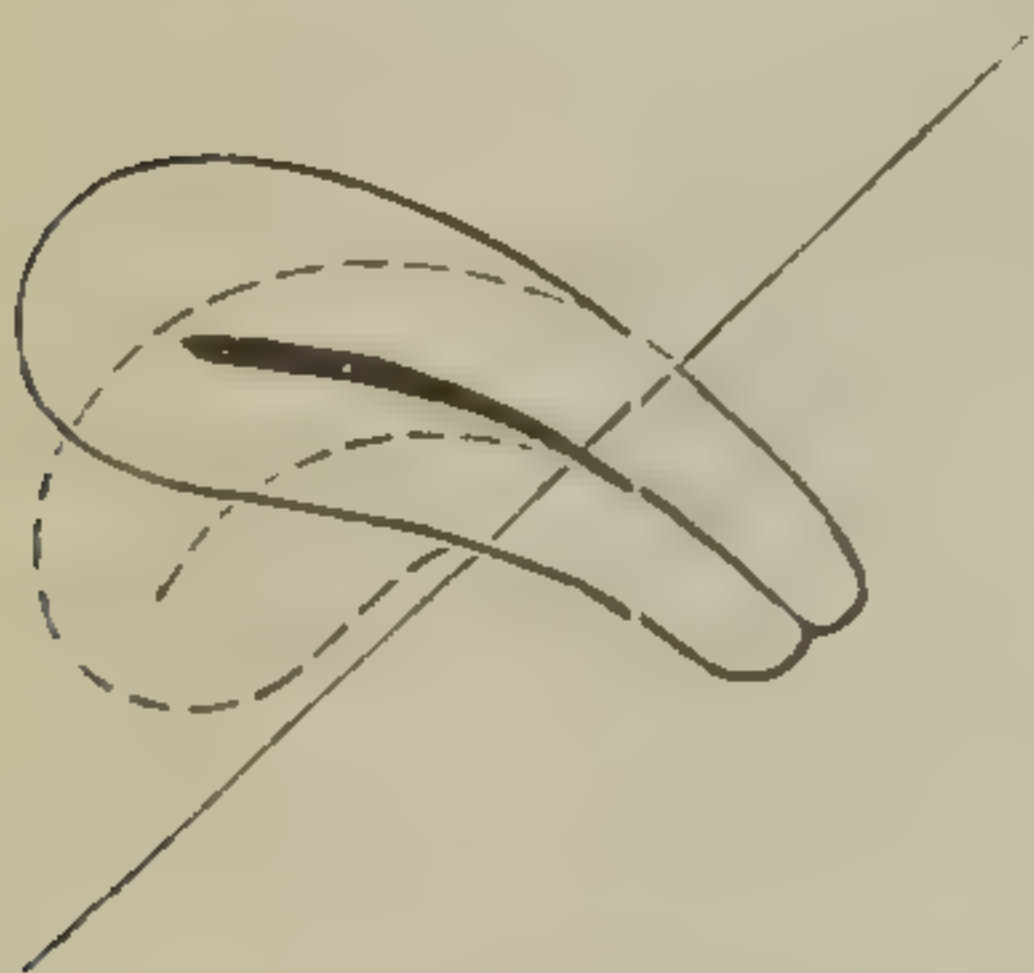


FIG. 69.—ANTEFLEXION.



FIG. 70.—SLIGHT DEVIATION FROM NORMAL POSITION.

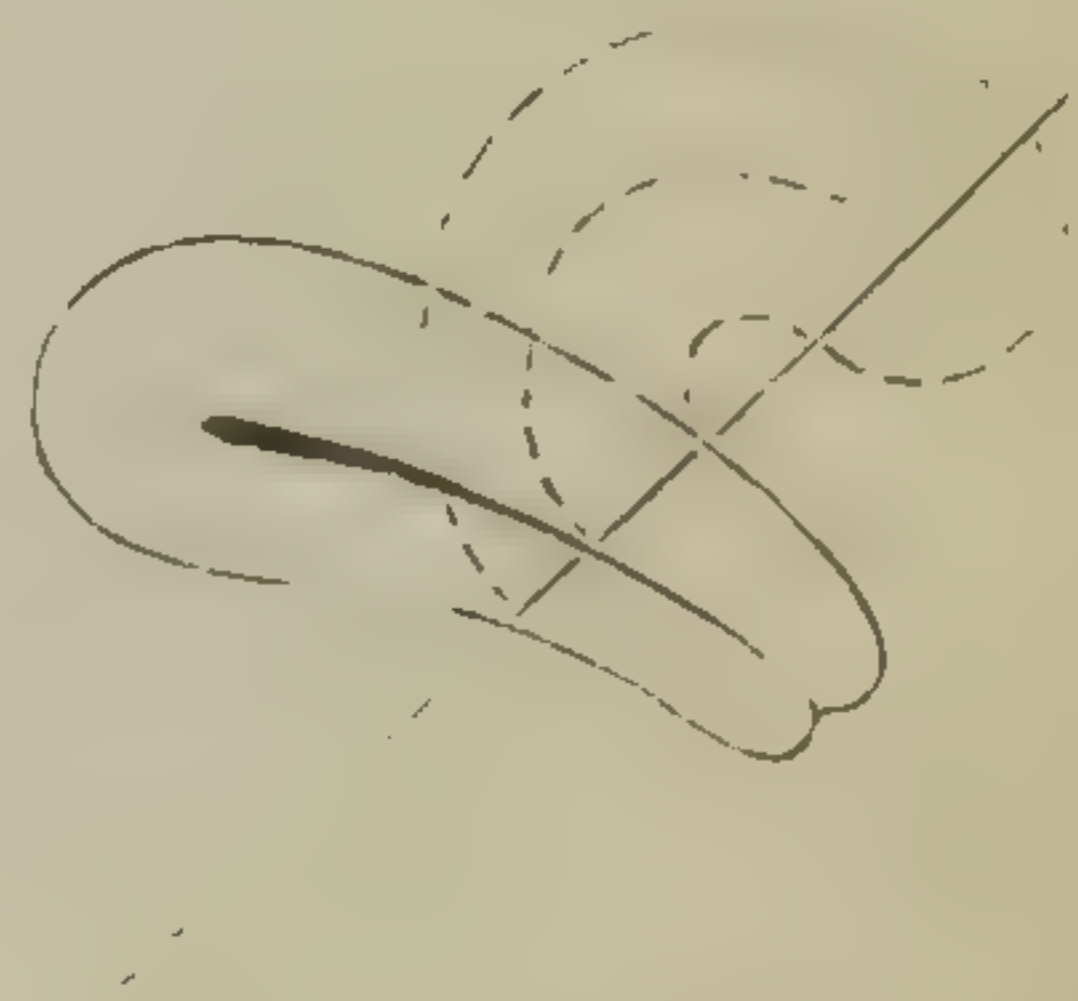


FIG. 71.—RETROFLEXION OF BODY.

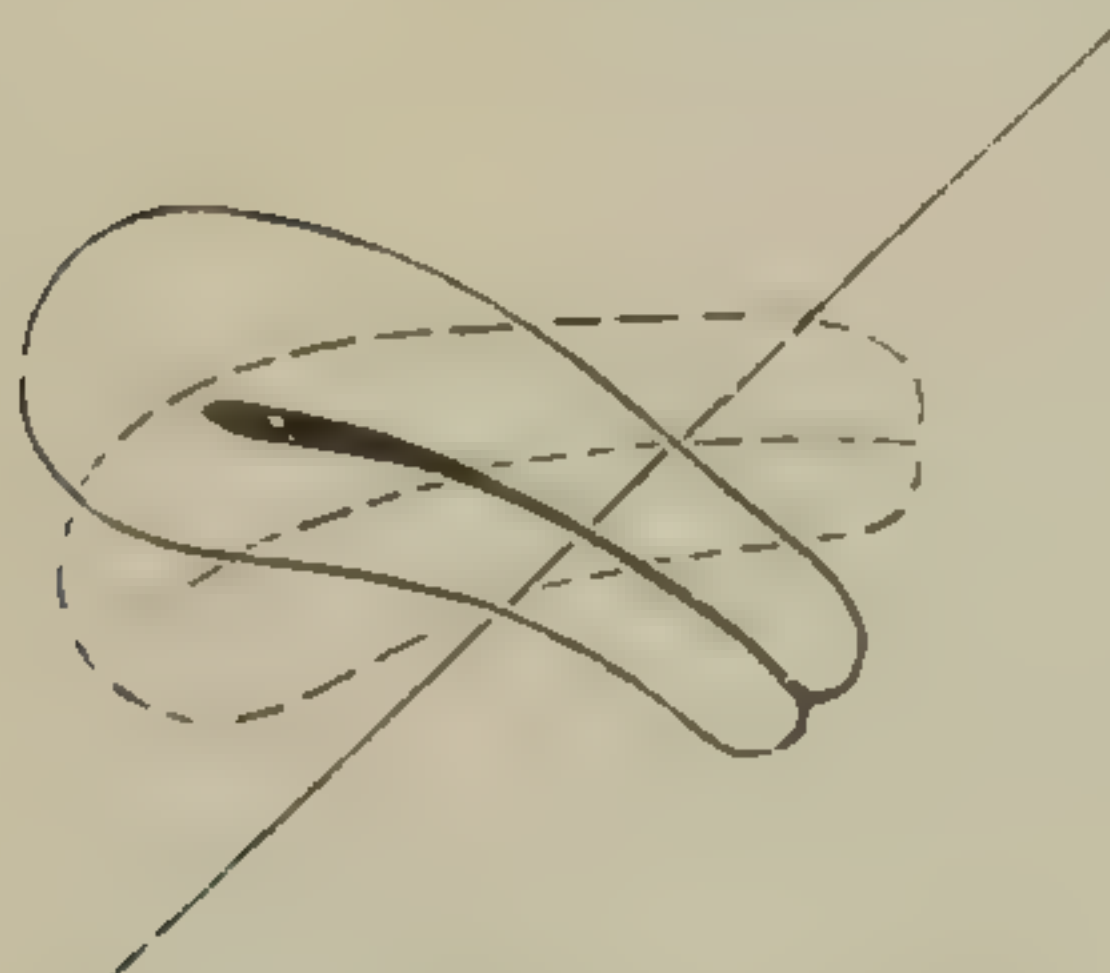


FIG. 72.—ANTEVERSION.

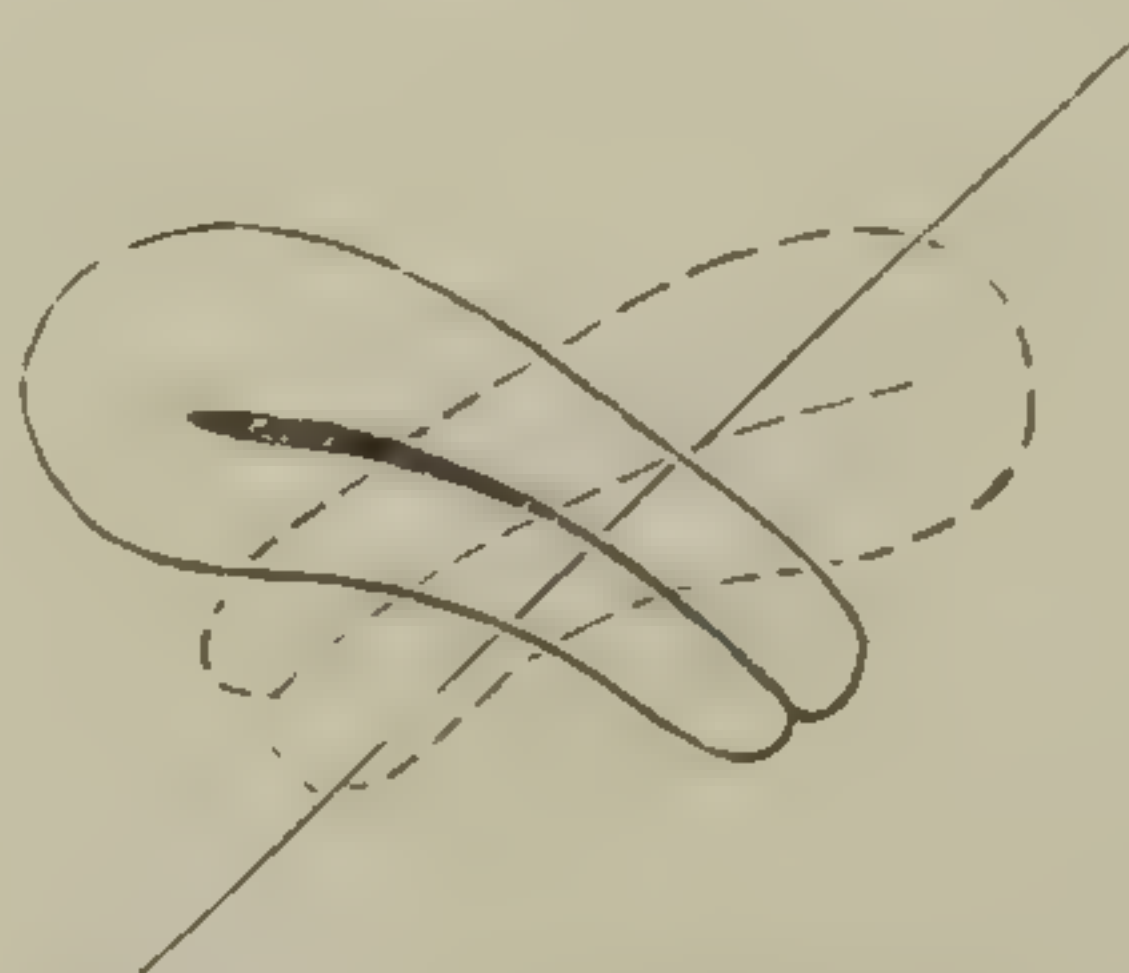


FIG. 73.—RETROVERSION.

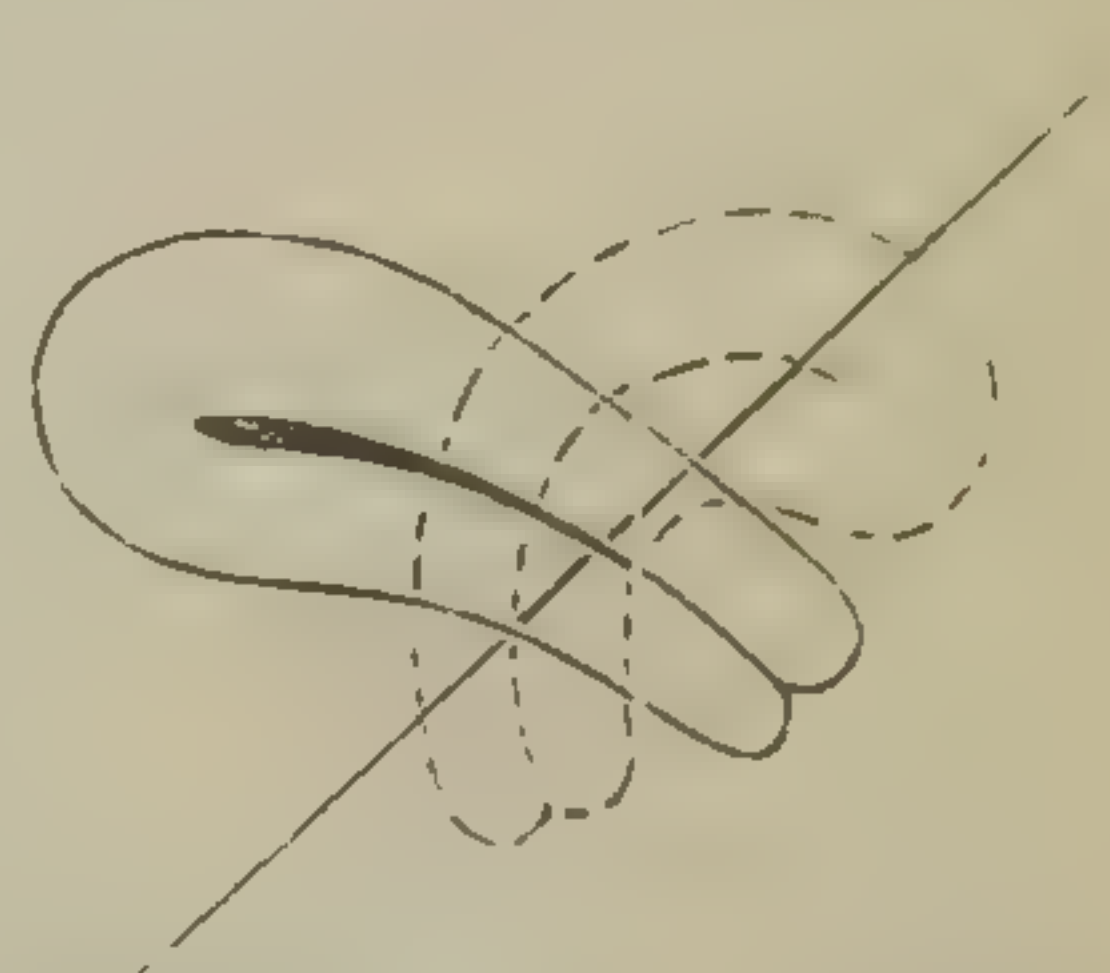


FIG. 74.—RETROFLEXION.

DIAGRAMS SHOWING DIFFERENCE BETWEEN NORMAL POSITION OF THE UTERUS AND ANTERIOR AND POSTERIOR DISPLACEMENTS.

The heavy lines represent the normal position of the uterus; the dotted lines the varieties of displacements, and the diagonal lines the plane of the pelvic inlet.

relation of the body with the cervix or producing alteration in the axis.

Flexions and Versions.—In a flexion, the position of the body and neck (cervix) change their relation, so that their canals make an angle with each other. In other words, the uterus is bent over on itself. (See Figs. 69, 70, 71, 74.)

In a version, the entire uterus (body and neck together) changes its position, the canals of the body and cervix being in a straight line. (See Figs. 72 and 73.)

ANTEFLEXION.

Definition.—Anteflexion is a condition in which the body of the uterus is bent forward on the cervix. This condition can



FIG. 75.—ANTEFLEXION OF THE UTERUS.

only be called pathological when there is rigidity at the point of flexion. The position of the flexion is usually the upper third of the cervix. Anteflexion is most common in those who have not borne children.

Varieties.—1. Corporeal; the position of the cervix is normal but the body is flexed.

2. Cervical; the position of the body is normal but the cervix is flexed.

3. Cervico-corporeal; both body and cervix are flexed.

4. Retroposition with antelexion; the cervix is flexed upward and the body forward, while the whole uterus is tipped backward on its longitudinal axis, as though it swung on a horizontal pivot (*Thomas and Mundé*). This form is usually congenital. (See Fig. 76.)

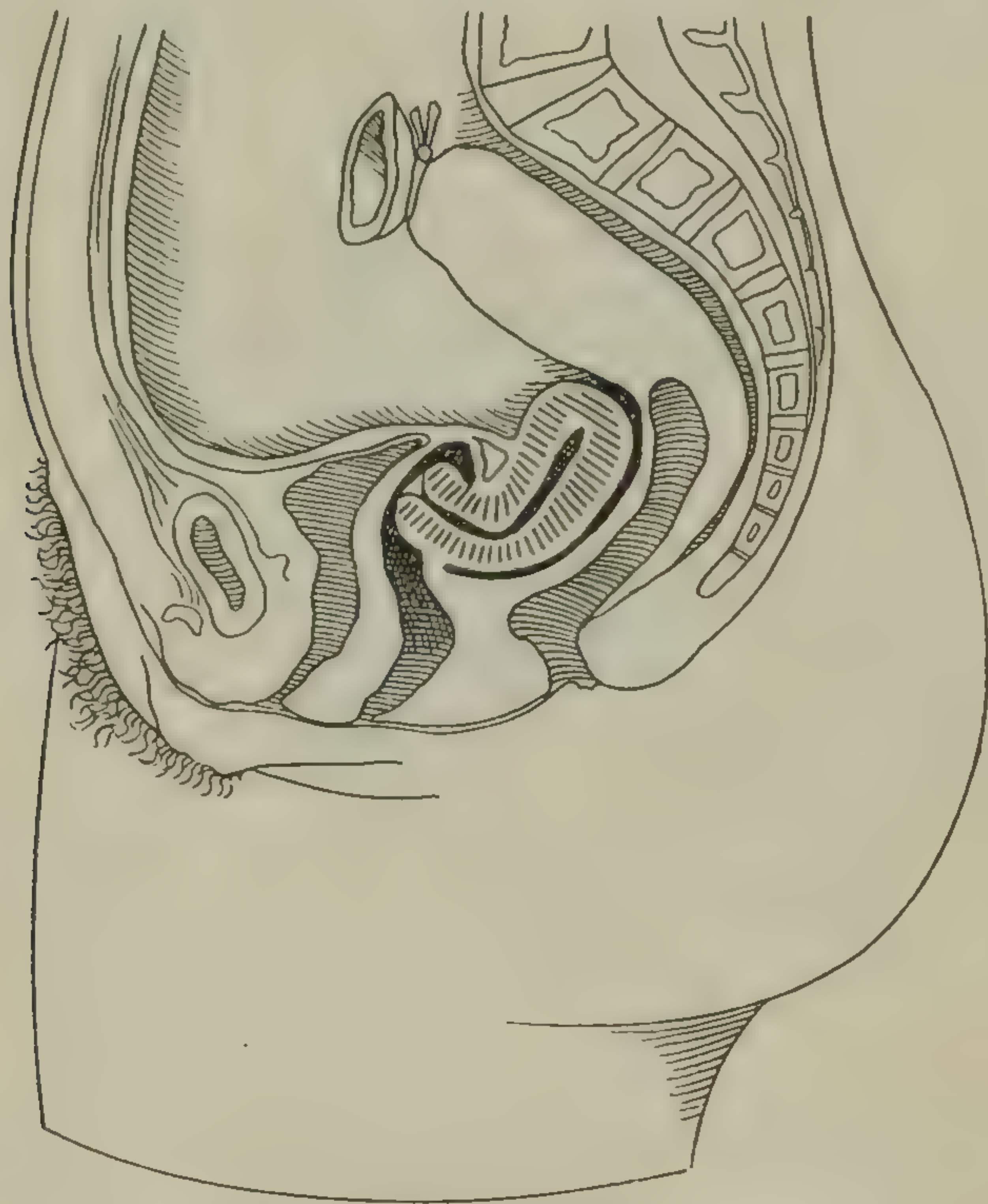


FIG. 76.—RETROPOSITION WITH ANTEFLEXION.

Causes.—Anteflexion may be congenital or acquired. In the latter, the most common causes are—

1. Inflammatory conditions in the uterosacral ligaments, producing cicatricial tissue, which later contracts and draws the upper portion of the cervix upward and backward, the fundus at the same time being thrown forward.

2. Bandl ascribes as a cause the extension of cervical catarrh, first, to the true cervical tissue, and, later, involving the cellular tissue of the uterosacral ligaments.

3. Adhesions resulting from parametritis or peritonitis.

4. Inflammation occurring at the site of a recently attached placenta. Metritis occurring in a flexible uterus may be a cause.

5. Tumors, such as fibromata, may by their weight produce ante flexion.

6. In a number of cases version precedes flexion, and the latter is caused by an exaggeration of the cause of the former (*Montgomery*).

Symptoms.—In some cases the condition exists for a considerable time without any symptoms. The most marked symptoms, however, in the majority of cases are—

1. Dysmenorrhea.

2. Sterility.

3. Leukorrhea.

4. Menorrhagia.

5. Symptoms due to inflammation of the uterus itself.

There may also be symptoms due to disarrangement of the functions of the bladder and accompanying cystitis.

Dysmenorrhea.—The pain usually makes its appearance with, or a few hours before the menstrual flow, and continues until the latter ceases. In some cases, the appearance of the flow affords partial relief from pain. The pain is generally felt in the small of the back, in the lower part of the pelvis, behind the pubes, down the thighs, and on top of the head. Many patients complain of a bearing-down sensation, much like the beginning of labor. Some patients have a morbid and invincible aversion to walking, partly arising from physical and partly from mental causes (*Thomas and Munde*). The menstrual blood is frequently clotted, and the flow is followed in a few days by an irritating milky discharge (leukorrhea).

Sterility.—This may be due to stenosis or occlusion of the cervical canal caused by the flexion. In cases of congenital flexion, it is frequently caused by the infantile and undeveloped condition of the uterus itself.

Long continued ante flexion may produce degenerative changes in the endometrium, which thus fails to form the proper nidus for

the growing ovum. Urination is apt to be increased in frequency, when the patient is standing. Lying down causes the excessive frequency to disappear.

Method of Examination for Ante flexion.—The patient should be in the dorsosacral position; her bowels and bladder should be empty. The physician should cleanse his hands according to the directions before given. On vaginal examination the cervix is found somewhat higher than normally, the os frequently pointing forward and downward. In sweeping the anterior uterine wall, a protuberance will be felt about at a point corresponding to the position of the internal os; this tumor is continuous with the intravaginal portion of the cervix and is the fundus uteri. In severe cases of flexion, a sharp angle can be often detected at the point of junction of the corpus uteri with the cervix. Bimanual examination will show the size of the uterine body, its degree of sensitiveness and its movability. Frequently, unless adhesions exist, the body can be straightened by this means. The internal hand should note the presence of adhesions drawing the cervix backward and upward into the posterior culdesac. Note, if moving the cervix causes pain, particularly if it is drawn downward. If pain is present during this manipulation, it usually marks the presence of inflammation of the uterosacral ligaments.

Rectal examination, which in these conditions is of great value, shows a small tumor on the anterior wall, which is the intravaginal portion of the cervix. The diagnosis of the flexion can be further established by the use of a sound bent to suit. This will give information as to the size of the uterus, and of its cavity, the presence of obstructions and the sensitiveness of the endometrium. Great care, however, must be taken in the use of this instrument. It must be absolutely clean and no acute inflammatory condition of the uterus or appendages be present. No force whatever should be applied in its introduction, as perforation or other serious consequences may result. It is often well to steady the cervix with a volsellum or tenaculum while introducing the sound.

Differential Diagnosis.

From tumors on anterior wall and old Inflammatory Deposits, from fibromata or fibromyomata of the anterior wall of the uterus.—Where the fibroid is situated on the anterior wall, the fundus can

sometimes be marked out by bimanual examination, extending above and behind the tumor. A sound passed into the uterine cavity passes not into the tumor, but behind it. Fibroids of the posterior wall can generally be outlined through the rectum. In anteflexion, the fundus can be included between the internal and external hand, and the sound enters the tumor when bent to the proper angle.

From Inflammatory Deposit in front of the Cervix.—Bimanual examination will show the fundus elsewhere. Usually with anteflexion there is little or no tenderness. Where an inflammatory deposit exists, *considerable* tenderness is present, the fundus cannot be found in any other position, and there is apt to be more or less fixation of the uterus. In this class of cases the sound as a means of diagnosis had best be omitted.

ANTEVERSION.

Definition.—In anteversion, the uterus inclines forward, its axis is straightened in such a manner that the normal bend forward is lost. The cervix is higher and points directly backward against the posterior vaginal wall or into Douglas's culdesac or toward the hollow of the sacrum. In this condition, the uterus is generally enlarged, hard, and more or less fixed by adhesions. It may be, however, freely movable. Like anteflexion, in order to be pathologic, the anteversion must be a permanent condition.

Causes.—The most frequent cause of anteversion is structural changes in the uterine tissue following abortion or confinement, where subinvolution has taken place from slight infection. The large softened uterus tilts forward and becomes fixed by bands of adhesion. Other predisposing causes may be mentioned, such as lack of general muscular tone, particularly of the abdominal walls. Among the principal exciting causes are congestions, hypertrophy or hyperplasia, fibroids and other tumors on the posterior wall, pregnancy, lacerated perineum, tight clothing, relaxation of the uterine ligaments, loss of the retentive power of the abdomen, prolapse of the vagina, etc.

Symptoms.—In the majority of cases no symptoms that can be directly ascribed to the anteversion, are present. As the condi-

tion is most frequently produced by metritis, parametritis or cellulitis, the symptoms are those of these conditions. Dysmenorrhea and sterility are frequently present. The pressure of the fundus uteri on the bladder may cause irritation of that viscus, sometimes amounting to cystitis. Frequent micturition occurs. Pressure of the cervix against the rectum may occasionally produce tenesmus. In chronic cases there are generally present catarrh and erosion of the cervix.

Diagnosis.—Upon vaginal examination, the cervix is found

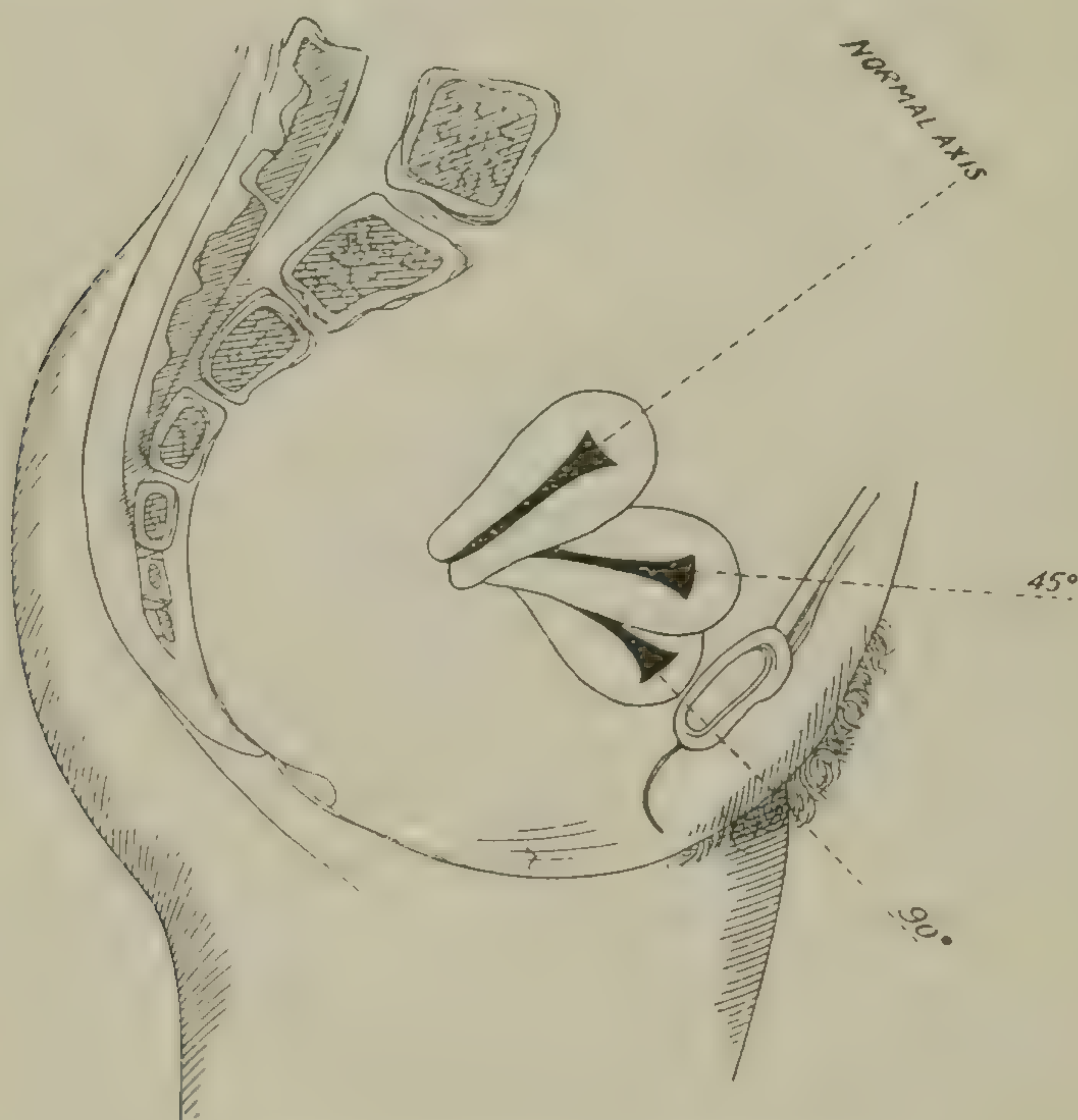


FIG. 77.—DEGREES OF ANTEVERSION.

pointing directly backward, the os being directed toward the hollow of the sacrum. Through the anterior vaginal wall a round, more or less firm body can be felt at the point of junction of the uterine body and neck. The uterus is generally enlarged, and in true anteversion is more or less fixed. No angle, as in anteflexion, can be felt.

Bimanual Examination.—By this means of diagnosis, the

tumor in front of the cervix can be included between the internal and external hands and found to be the uterine body. The amount of fixation and movability can also be ascertained. Rectal examination demonstrates the presence of a slight protuberance on the anterior wall, which proves to be the cervix. The sound as a means of diagnosis had best be omitted save in exceptional cases, as it is hard to pass into the uterine cavity, and by its use, there is considerable danger of lighting up an inflammation.

Treatment of Anterior Displacements.—Many cases of simple antedisplacement require no treatment. Where the displacement is secondary, the primary cause should be sought for and treated. Where unpleasant symptoms are produced, the uterus should be replaced. Occasionally, after emptying the bladder the uterine fundus can be grasped through the abdominal wall and raised on two fingers; one hand placed in the vagina may raise the fundus while the cervix is drawn forward and downward by means of a tenaculum. In some cases, the sound has been recommended as a means of replacement, but many operators consider it dangerous. When adhesions bind the uterus in position, the fundus should be gradually raised, by two or three fingers placed in the vagina, the cervix at the same time being drawn gradually forward. Tampons should be inserted so as to gradually force the cervix forward. This treatment may be repeated until the adhesions are either broken up or sufficiently stretched to allow the uterus to be permanently held in place by a pessary. Many cases of simple anteversion can be relieved by an abdominal binder.

Where the displacement is due to an exciting inflammatory condition, this must be treated by copious vaginal irrigations of hot water, the douches being best given from a large fountain syringe or other apparatus of the same description. The patient should be in the dorsal position with hips somewhat raised. After each irrigation, the vagina should be dried and iodine applied to the fornices. Pelvic congestion should be relieved by tampons of boric acid and glycerin. The bowels should be kept open by the administration of sulphate of magnesia or other saline. Where the anteposition is the result of subinvolution, after all inflammatory symptoms have subsided the cervix should be dilated by

graduated solid or parallel dilators and the cavity gently but thoroughly curetted. This operation should be done under the most strict antiseptic precautions and as follows:

i. The uterine cavity may be washed out with a hot boric acid solution.

2. All traces of the diseased endometrium should be removed with a sharp curette. For this purpose, an instrument which will remove the endometrium and at the same time carry a stream of antiseptic fluid into the cavity, thus to aid in washing away the removed membrane, will be found of value. Such an instrument is known as a douche curette.

3. After curetting, the uterine cavity should be again washed out and packed rather tightly with iodoform gauze. The vagina should be lightly tamponed and the dressing secured by a pad and T-bandage. The packing must be removed about the third day; some operators, however, let it remain as long as six days. The patient should be allowed out of bed about the



FIG. 78.—DOUCHE CURETTE.

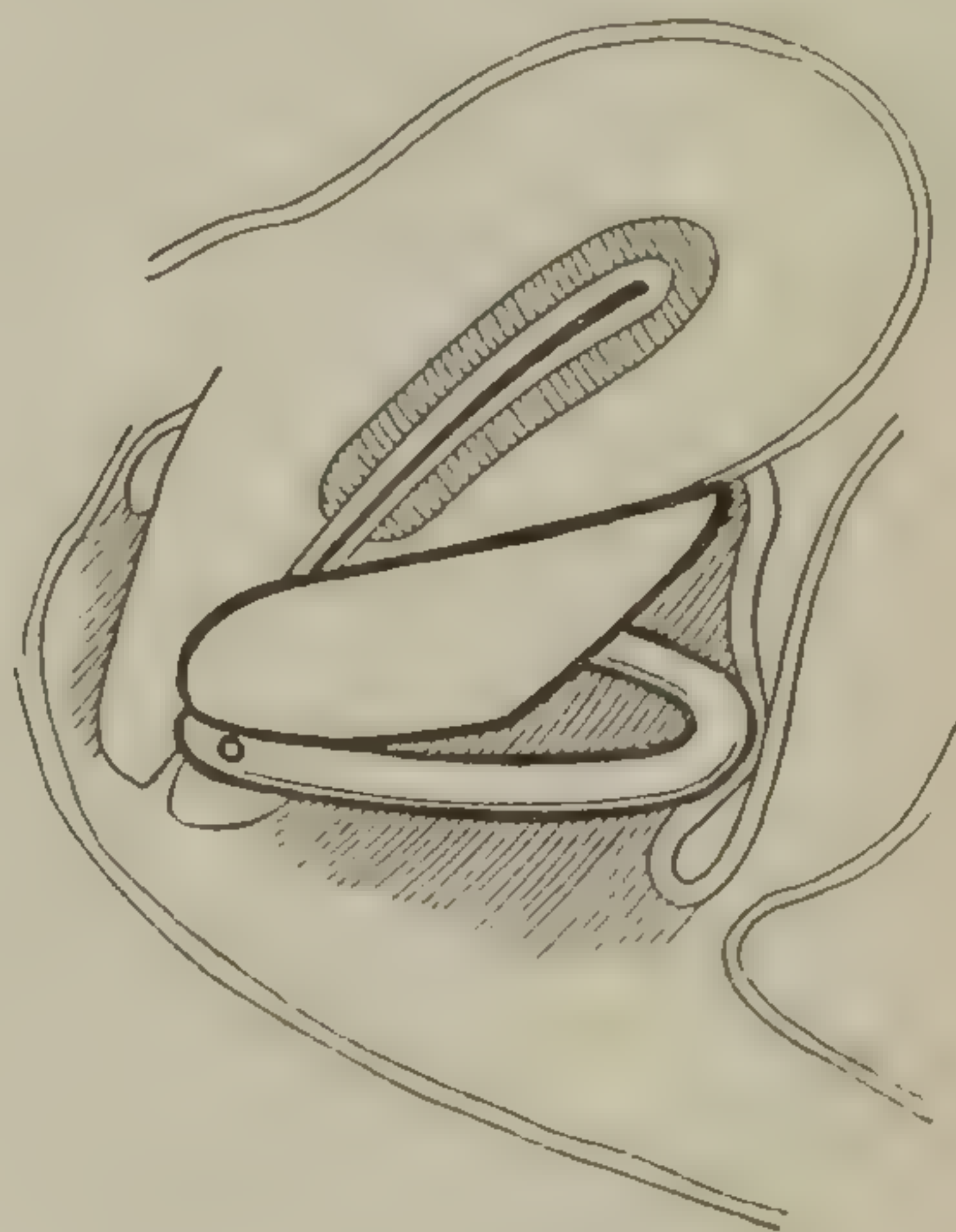


FIG. 79.—THOMAS' ANTEVERSION PESSARY IN POSITION.

fourth day. In cases of ante flexion with retroversion, the canal

should be cautiously dilated and the endometrium removed and the uterus packed in the same manner as above. Some operators insert a light gauze drain just through the internal os after the packing has been removed.

Pessaries.—The chief object to be attained in the use of pessaries in anterior displacements is to make gentle pressure on the base of the bladder above the junction of the cervix and the body of the uterus, as near the fundus as possible, to supplement the



FIG. 80.—GRAILY HEWITT'S ANTEVERSION PESSARY.

vesicouterine ligaments (*Thomas and Mundé*). Before a pessary can be safely used, all inflammatory symptoms must have been absent for some time, the uterus must have been replaced and freely movable. The bowels must be thoroughly emptied and the bladder contain no urine. Many pessaries have been used in the treatment of anterior displacements. The simple ring of soft rubber which is drawn together when inserting, the Smith-Hodge, Thomas, Graily Hewitt, have their advocates. The

Thomas pessary is inserted open and then fixed in position as in the cut.

The pessary should be carefully fitted and removed for inspection at the end of three or four days. If any erosion or marking of the vagina is found, the instrument should be refitted. The vagina should be frequently irrigated thoroughly with hot water. After the pessary has been perfectly fitted, the instrument need only be removed and examined about once a month. Cases of anterior displacement in which the cervix is abnormally long can be treated by amputating the cervix. About two-thirds as much should be removed as is desired, to have the ultimate decrease in size. After such removal of the cervix, considerable atrophy of the remainder of the organ takes place. Where the displacement is due to downward traction caused by a lacerated perineum, the latter should be repaired by one of the operations before given. Downward pressure from above, should be relieved by having the patient wear her corsets loose and wear her skirts suspended from the shoulders, thus relieving abdominal pressure to a certain extent.

POSTERIOR DISPLACEMENTS (RETROFLEXION).

In retroflexion of the uterus, the fundus is permanently displaced backward, the organ at the same time being flexed on its posterior surface.

Causes.—Congenital retroflexion is rare; when it does occur, it is found chiefly in single or sterile married women.

Pathology of Congenital Retroflexion.—The angle of flexion is usually quite acute, the point of flexure being at the internal os. The fundus is found plainly marked in Douglas's cul-de-sac. The whole uterus is well back in the pelvis and is very frequently so adherent to the rectum as to make the flexion irreducible.

The cervix is normal or slightly decreased in size. Its anterior wall opposite the internal os becomes greatly thinned while the posterior wall is thickened. No disease of the ovaries and tubes generally accompanies this form of flexion.

Symptoms.—Congenital retroflexion is usually accompanied by the following symptoms:—

Dysmenorrhea, severe in character, the menstrual flow being scanty and clotted.

Sterility, is present in nearly all cases of congenital retroflexion.

Endometritis, in some form is usually present. Purulent endometritis, however, is not frequently found.

The other symptoms are backache; headache; occipital or coronal, constant, but increased at the menstrual epochs; pelvic

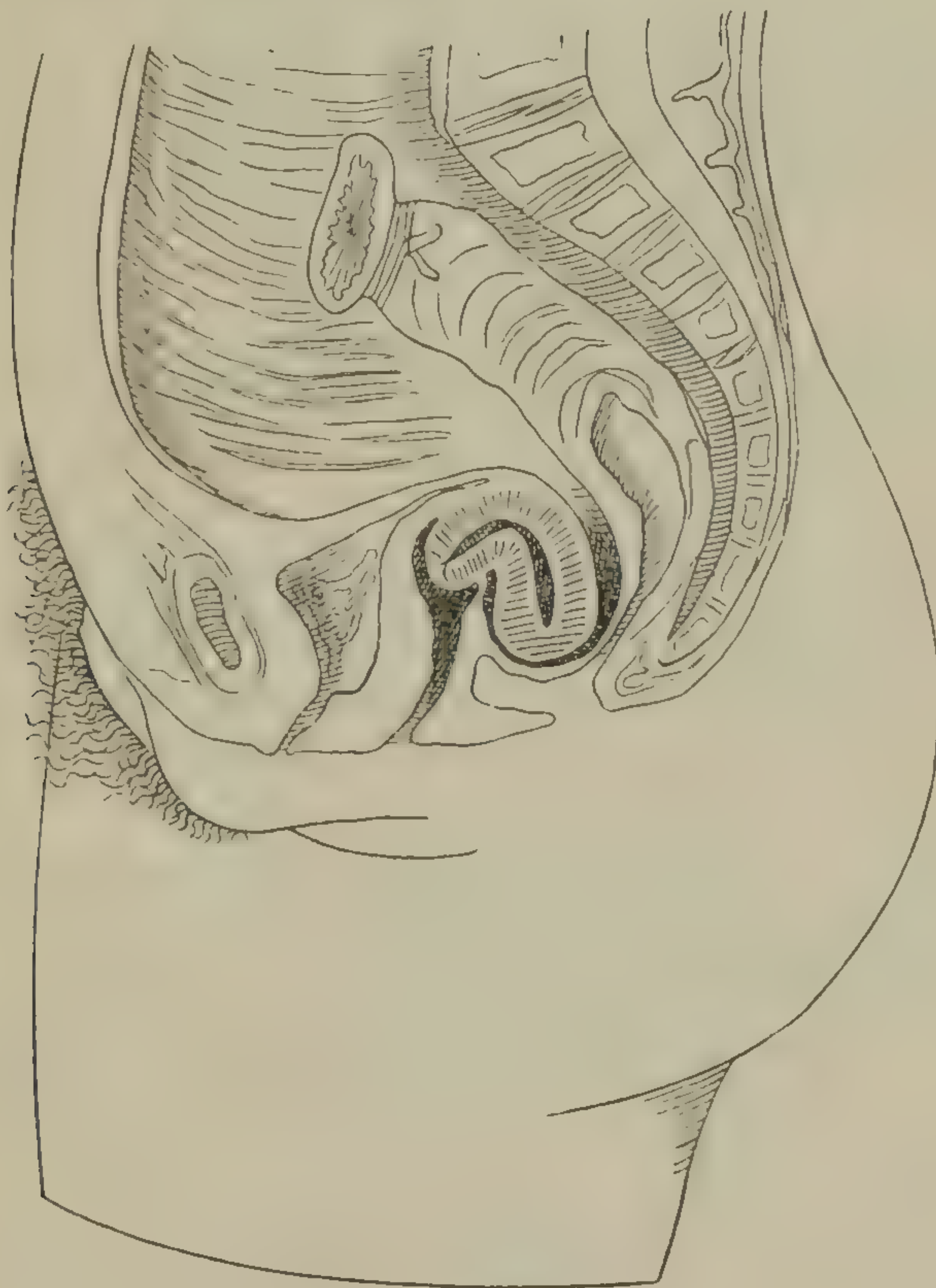


FIG. 81.—RETROFLEXION.

tenesmus; difficult and painful defecation, the stools being small and often flat and thin (ribbon like); leukorrhea is generally present.

Physical Signs.—Bimanual examination shows the fundus absent from its normal position, but detects it in the posterior culdesac. The cervix is small and points in the axis of the

vagina or toward its anterior wall. The uterine canal is shortened in its total length and the fundus may press on the rectum.

Treatment.—As in this form of retroflexion the body of the uterus is frequently so closely adherent to the rectum as to render reduction by other means impossible, operative means are advised. An incision should be made in the posterior lip of the cervix, extending through it to above the internal os. The cervix is then dilated and the uterine cavity curetted and well washed out.

Hemorrhage is apt to be free from cutting the circular vessels, but the bleeding can be checked by the use of tampons. The vagina should be tamponed. These may be removed in two or three days.

ACQUIRED POSTERIOR DISPLACEMENTS.

These may exist either as retroflexions or retroversions; the latter very frequently precede the former and are produced in many cases by an exaggeration of the primary cause of the retroversion. Posterior displacements are most common in married women.

The **causes** are divided into predisposing and exciting.

Predisposing causes are a general lack of muscular tone, parturition, inactive habits.

Exciting Causes.—Any cause increasing the weight of the body of the uterus, as subinvolution, areolar hyperplasia, tumor in the fundus, especially fibroids; pregnancy.

Causes which produce a gradual drawing of the uterus from its proper place; as adhesions arising from pelvic peritonitis, rectocele, etc.

Causes which produce direct displacement backward; as tumors anterior to the fundus, blows, falls, violent muscular efforts, distended bladder, a prolonged dorsal position after confinement, especially when combined with a too tight abdominal binder.

Causes arising from relaxation of the uterine supports; as a badly lacerated pelvic floor and perineum or great relaxation of the latter.

The most frequent causes are—

1. Subinvolution, where the large flabby body tends to fall backward, the cervix remaining as a fixed point.

2. A ruptured perineum.

Pathology.—Posterior displacements most frequently begin as retroversion, and the cause of this continuing, the flexible uterus bends backward on itself at the internal os. Either retroversion or retroflexion, however, may occur as a primary condition.

Combinations of the two are described as retroversioflexio, etc. When flexion has taken place, the circulation of the uterus becomes interfered with, and congestion and enlargement of the body with hypertrophy of the endometrium follow. From increased growth of fibrous tissue, rigidity at the junction of the body and cervix takes place. There is thickening of the posterior lip of the cervix, while the anterior becomes greatly thinned. Where the flexion is acute, the cervical canal may become occluded and retention of secretions occur therefrom.

Symptoms.—Dysmenorrhea; sterility or habitual abortion; menorrhagia; leukorrhea; nearly constant, dull, dragging pain in the back and down the thighs; headache, coronal or occipital in situation; constipation, with pain during defecation—the bowel movements are often flat and ribbon-like; rectal tenesmus; irritability of the bladder, sometimes with leaking of urine when the patient laughs or moves suddenly.

From the continual leukorrheal discharge, erosions of the cervix appear. Following the above symptoms a whole train of nervous phenomena may occur, the patient becoming melancholic or hysterical. The symptoms produced by the displacement are frequently aggravated by endometritis, which often accompanies the condition.

The Consequences of Retrodisplacements.—Where retroflexion becomes chronic the secretions may be retained in the uterine cavity and an endometritis be set up thereby. Adhesions may be formed between the uterus and bowel; the broad ligaments may become distorted and congested. Prolapse of the ovaries and tubes may occur.

Diagnosis.—The dorsal position with the patient's thighs well flexed on the abdomen is the most convenient, although it is frequently well to verify the diagnosis by examining the patient in Sims' position. The bowels and bladder should be empty.

Vaginal Examination.—The index finger either alone or in

company with the middle finger of either hand inserted into the vagina finds the cervix lower down, the os looking farther forward, that is, the point of the finger can be made to nearly or quite enter the os. In cases of marked retroversion, the finger first touches the posterior lip, because of its enlarged condition. Where flexion exists, the angle between the body and cervix can be made out by gently pressing upward in Douglas's culdesac. Extending the finger along the posterior wall of the cervix, the continuation of the uterine tissue can be felt from this point extending backward in versions, or distinctly downward in flexions. A tumor, which is the body of the uterus, is felt in the posterior vaginal fornix. No tumor can be felt in the anterior vaginal fornix.

Bimanual Examination.—The disengaged hand is placed on the abdomen, pressing gently and firmly with the finger tips. By a gentle pawing motion in the direction from the umbilicus toward the pubes and at the same time gradually increasing the pressure, the resistance of the abdominal muscles can sometimes be overcome. The hands of the examiner should be well warmed. The uterine body will be absent from its normal place, and cannot be felt between the vaginal and outer hand; the cervix, however, can be pressed between them.

Rectal Examination.—A tumor, which is the fundus uteri, can be felt on the anterior rectal wall. The tumor is higher up in retroversion than in retroflexion. When the cervix is drawn down by a tenaculum, the tumor moves, will almost disappear if no adhesions exist. The examiner should discover as exactly as possible whether the uterus is movable enough for immediate replacement or if it is bound by adhesions to neighboring organs.

In extreme cases, the ovaries may be felt on either side of the body of the uterus.

The sound, when used as a means of diagnosis, will be found to enter the uterine cavity more easily where it is bent at somewhat of an angle in retroversions, and when curved in retroflexions.

In the latter case, a point of obstruction will be found at the angle of flexion. In either case the direction is backward.

Differential Diagnosis.

From Prolapsed Ovary or Small Ovarian Tumor.—When one

or both of these are present, the uterine body will be found in front of the tumor.

An ovarian tumor is softer and more elastic than the body of the uterus.

By drawing down the cervix with a tenaculum, the body of the uterus will be found to move with the movement given the cervix.

From Feces in the Rectum.—Bimanual examination demonstrates the fundus anterior to the tumor, which has a doughy feel, unlike the hard uterine tissue. If any doubt exists, the rectum should be emptied by a purgative.

From Inflammatory Deposits in Douglas's Culdesac.—During the course of an acute inflammation this may be very difficult. The sound as a means of diagnosis must never be used in these cases. Careful examination will demonstrate the fundus uteri to be anterior to the tumor.

From a Fibroid on the Posterior Wall of the Uterus.—By bimanual examination in retrodisplacements, we find the fundus absent from the normal position, while the cervix points forward and downward. The sound introduced takes a backward direction.

A fibroid on the posterior wall would push the fundus forward; the anterior direction of the uterine canal would be demonstrated by the sound; the cervix probably would have an upward and backward direction. The tumor posterior to the cervix in the posterior vaginal fornix would be more irregular than that of the uterine body.

Treatment of Posterior Displacements of the Uterus.—The treatment of posterior uterine displacements may be divided into—

1. Methods for the replacement of the diseased organ, and
2. Measures used for the retention of the uterus in correct position after the malposition has been corrected.

Replacement by means of knee-chest or other positions, manipulations, either with the hands or instruments or both combined, tamponment, etc., are examples of the first. The pessary, certain forms of tamponment, operations for the removal of surplus vaginal tissue, for shortening the uterine ligaments and for directly holding the uterus in place, are examples of the second. The two methods of treatment should never be confounded.

Methods of Reduction.—Place patient in Sims' position. The operator standing at the patient's back should introduce the index and middle finger of the right hand into the vagina in such a manner, that the palmar surfaces of the fingers will be directed toward the rectum, and pressed into the posterior vaginal vault. Attempt to raise the uterus with the back of the first finger and push the fundus forward into its normal position, keeping the middle finger in the posterior vault to maintain what space is gained. As the uterus rises, the index finger should be carried in front of the cervix, which is to be forced backward toward the sacrum. As the cervix passes backward, the middle finger is placed in front of it. After the uterus has slipped into position, the finger should be kept in the last named position for a short time. The above method is applicable, where the uterus is not bound down posteriorly by adhesions.

Bimanual Reposition.—Place the patient in the dorsal or half reclining position, with knees flexed on abdomen. The bowels and bladder should be empty, and the vagina thoroughly irrigated by an antiseptic injection, such as creolin, \mathfrak{z} j to the quart, or equal parts of creolin and green soap, \mathfrak{z} j to the quart. This may be followed by an injection of boiled water. The finger is introduced and passed behind the cervix, when the tip is bent so as to push the cervix toward the symphysis pubis. The free hand now makes gradually increasing firm pressure on the abdomen, following the curve of the sacrum, trying to get behind the uterine fundus and pin it forward against the symphysis. This is an attempt to fix the uterus. The vaginal hand is pressed behind the body and moved forward until it and the body are in front of the fingers of the abdominal hand. The abdominal hand now grasps the body while the vaginal fingers are placed in front of the anterior lip of the cervix, which is pushed backward and upward toward the sacral promontory. It is sometimes of use to have the patient stand up while the cervix is held in this position, as by this maneuver the intestines fall behind the uterus and in conjunction with the intraabdominal pressure, aid in retaining the uterus in position.

Knee-chest Position.—This position will be found of great service. The patient having been placed in the above attitude,

the perineum is lifted by a Sims' speculum and air admitted into the vagina. The cervix is brought into view, caught with a tenaculum and then drawn forward toward the anterior wall of the vulva. The fundus at the same time may be pressed forward by means of a repositor or two fingers in the posterior culdesac. In many cases as soon as the fundus has passed the sacral promontory, it will swing into position by gravity alone without the aid of a repositor.

After reducing the retrodisplacement it is well to place a tampon anteriorly to the cervix, or the fingers may push the latter back while the patient assumes the dorsal position. By this

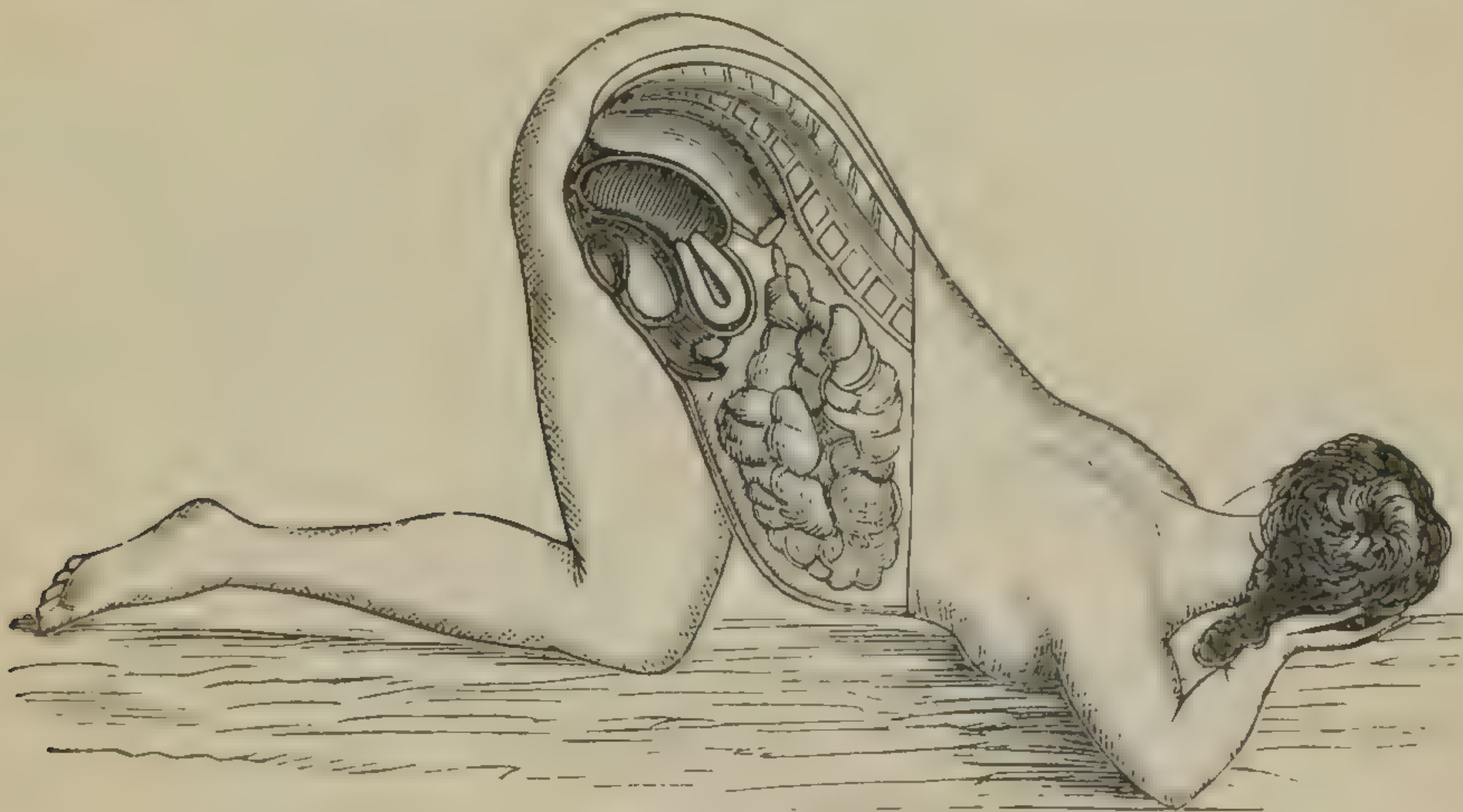


FIG. 82.—KNEE-CHEST POSITION SHOWING REPOSITION OF THE UTERUS BY GRAVITY AND PRESSURE OF AIR IN THE VAGINA.

change the intestines fall behind the uterus and help to press the latter forward. The knee-chest position is of great service in treating stout patients or those whose abdominal muscles are resistant. Rectal, rectovaginal or rectoabdominal pressure may be used to aid in replacement.

Replacement by the Sound.—The vagina should be thoroughly irrigated with some suitable antiseptic fluid. The sound must be carefully sterilized just previous to using. Replacement is accomplished by bending the sound somewhat, to facilitate its introduction. After it has entered the uterus with the concave side backward, make the handle describe an arc of a circle from behind forward and lower the handle towards the perineum.

The objection to this method is the dangers of sepsis and perforation. The preceding manipulations are applicable to cases where the uterus is movable, not bound posteriorly by adhesions, and in which no acute pelvic inflammation exists. No attempt should be made at replacing a uterus during an acute inflammatory attack. The attention should be confined to the relief of this condition, leaving the correction of the displacement until a later day. When the uterus is fixed in retroposition by adhesions, Brandt's method of gradual replacement is the best. The uterus

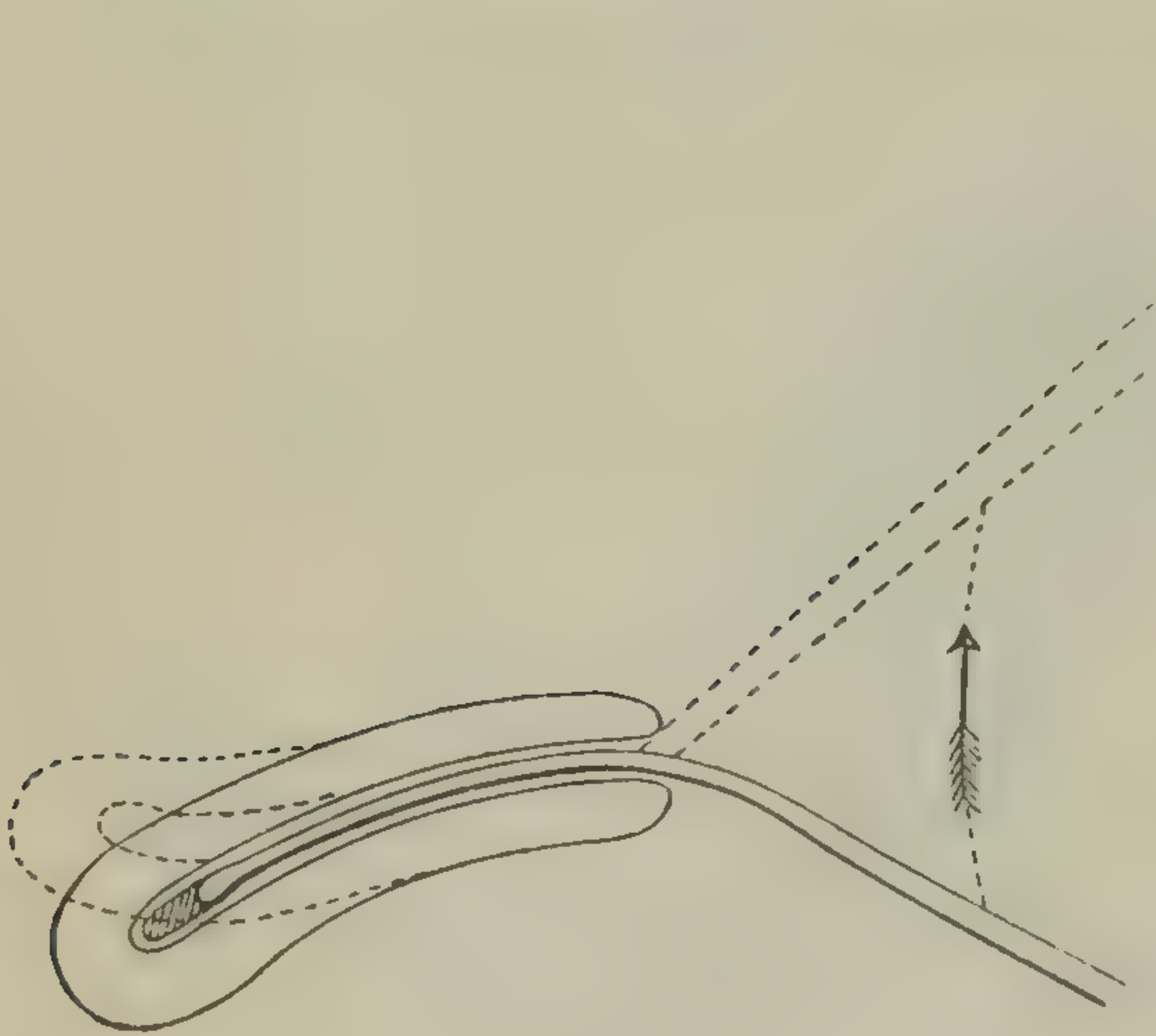


FIG. 83.—ROTATION OF SOUND PREPARATORY TO REPLACEMENT OF UTERUS.

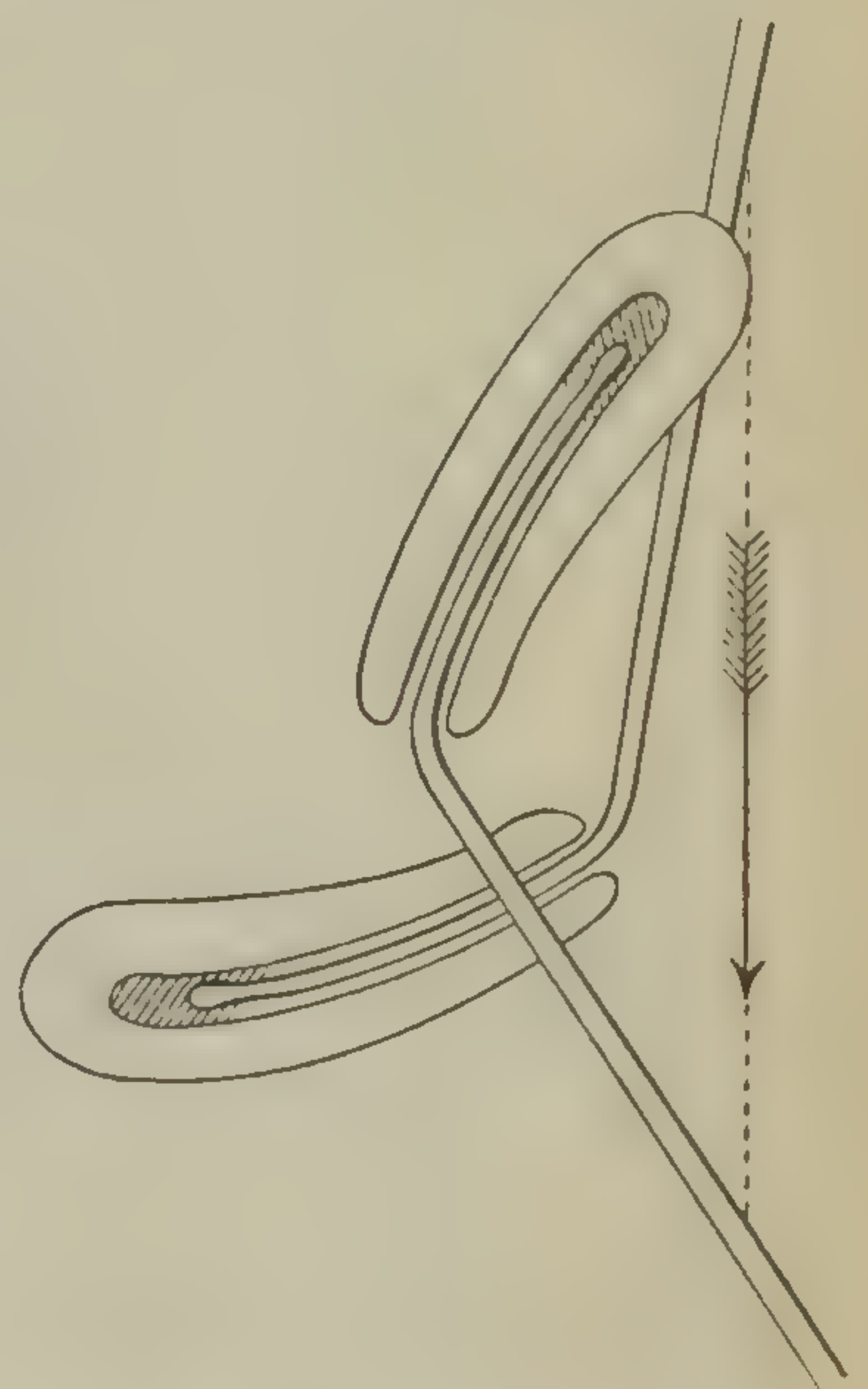


FIG. 84.—REPLACEMENT OF UTERUS BY DEPRESSING THE HANDLE OF SOUND.

should be gently raised by two fingers in the posterior fornix of the vagina, the pressure used being gradually increased, thereby stretching adhesions. The manipulations should be performed about every third day, each one being followed by a firm tampon of cotton or wool saturated with boroglycerin or ichthyol and glycerin.

Operative Treatment of Retrodisplacement.—In persistent cases of retrodisplacement, when all other attempts at reduction have failed, some operative procedure must be resorted to in suitable cases.

Alexander's Operation for Shortening the Round Ligaments.—To successfully perform this operation the pelvic organs must be normal, the uterus only being in persistent retro-position, and causing discomfort after all efforts have been made at replacement. The preparations for the operation are the same as for celiotomy. The uterus must be replaced prior to the operation and held in position by a high vaginal tampon of iodoform

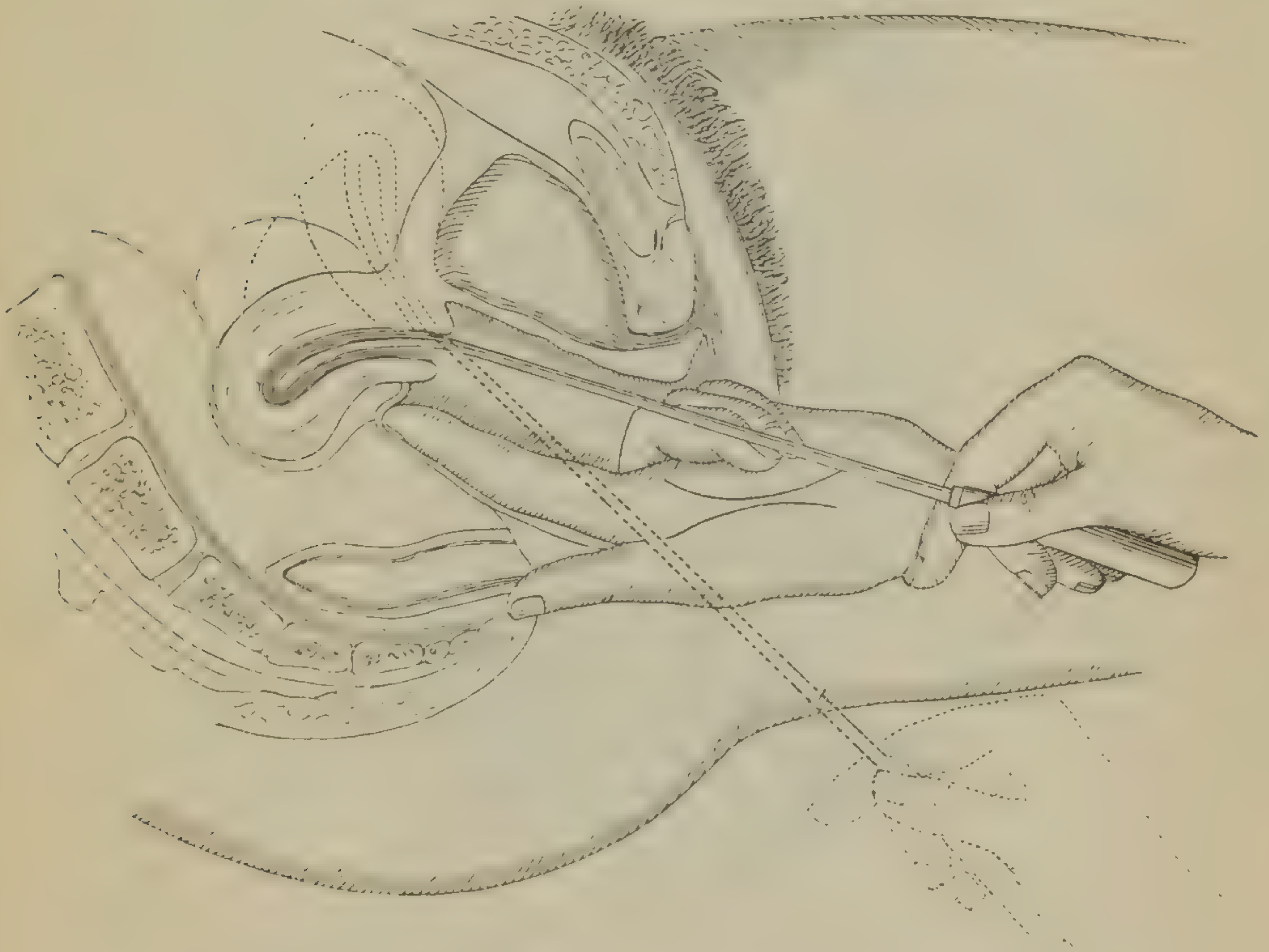


FIG. 85.—DIAGNOSIS AND REDUCTION OF RETROFLEXION BY THE SOUND.

gauze. This should be done the day before the operation. The incision is made from the spine of the pubes in the direction of the inguinal canal, that is, upward and outward. Length of incision about two inches. The external abdominal ring is now opened, the guide being the tendon of the external oblique muscle (care being taken not to wound any of its pillars) and the fascia picked up and incised down to the underlying fat, which is ex-

tracted. If the round ligament cannot now be found it will be necessary to open the canal to the internal ring. Having found the ligament, it is to be caught and held with forceps and the wound protected by temporary antiseptic dressing, while the liga-

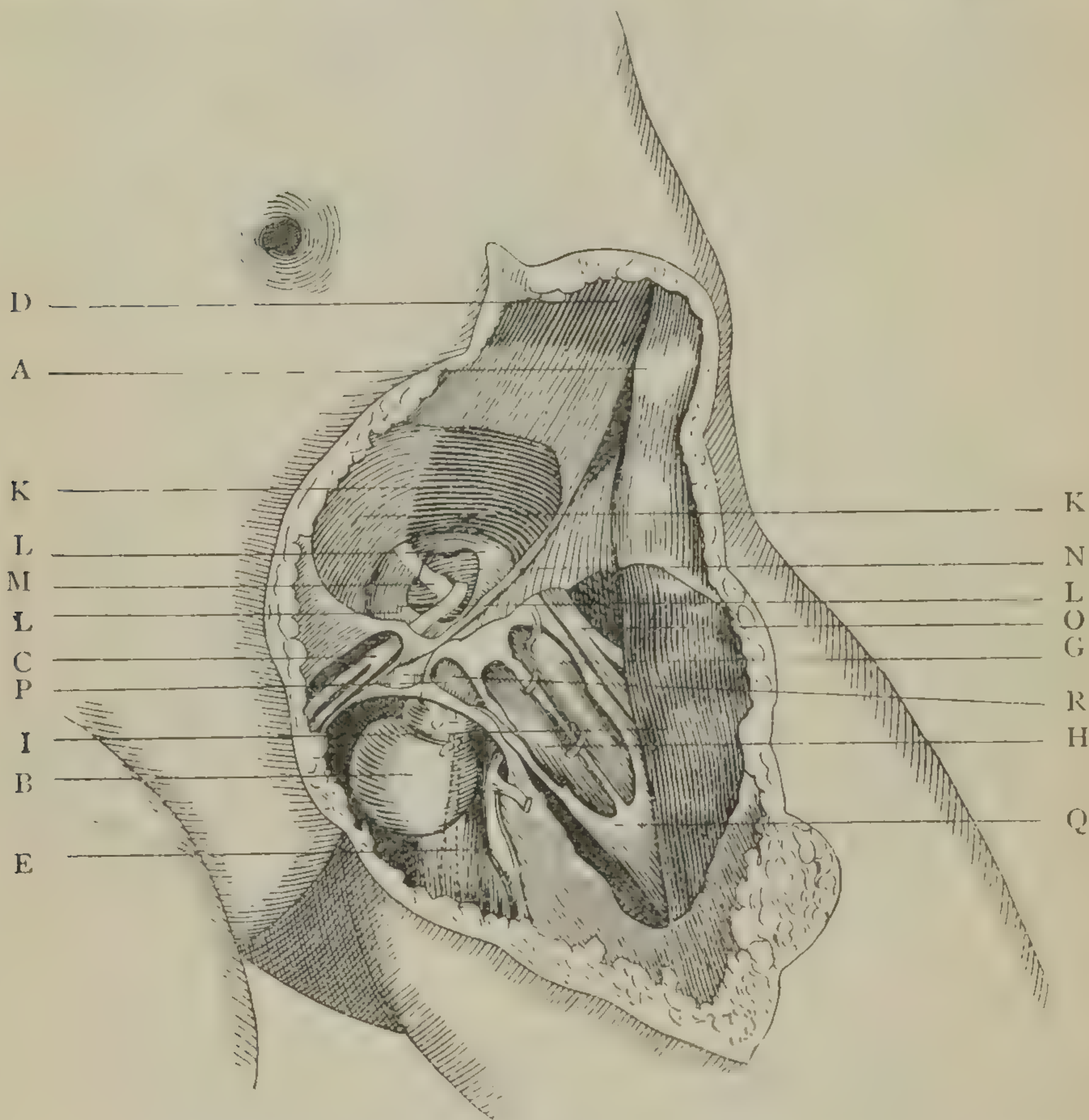


FIG. 86.—TOPOGRAPHIC ANATOMY OF THE ROUND LIGAMENT.

A. Anterior superior iliac spine. B. Crural hernia. C. Round ligament of the uterus. D. External oblique muscle. E. Saphena vein. G. Femoral artery in its sheath. H. Femoral vein in its sheath. I. Sartorius muscle. K, K. Internal oblique muscle. L, L, L. Transversalis fascia. M. Epigastric artery. N. Peritoneum. O. Anterior crural nerve. P. Hernia within the crural canal. Q. Femoral sheath. R. Gimbernat's ligament.

ment on the opposite side is sought for and caught in a similar manner. The ligaments are drawn out until they become tense and are given to an assistant to hold. Each ligament is now united to the pillars of the ring by catgut sutures and the surplus cut off, the free ends being stitched into the external wound.

Wylie or Baer's Operation.—This operation consists in opening the abdomen under strict aseptic precautions. The round ligaments are found and their inner sides scraped sufficiently to make a raw adhering surface. They are then folded on themselves and three ligatures passed so as to include most of the ligament and at the same time bring the raw surfaces together. This operation is not generally recommended.



FIG. 87.—GASTROHYSTEROPEXY OR VENTROFIXATION.

Hysterorrhaphy, also called Gastrohysteropexy or Ventrofixation.—The patient is to be prepared in the same manner as for celiotomy. The uterus should be replaced prior to the operation and held in position by tampons. The patient should be placed in Trendelenburg's posture. The incision is made in the median line, as for celiotomy. The uterus is found, adhesions broken up and the organ drawn up into the wound. A small spot on the anterior surface of the fundus is gently scraped, to aid adhesion to the anterior abdominal wall. Two sutures of thick hardened catgut are passed transversely through the uterine

fundus at its apex, penetrating the muscular tissue to a depth of about one-eighth of an inch. The ends of these sutures are passed through the abdominal wall, the uterus drawn forward and the stitches tied. The external wound is closed by lighter catgut sutures in the usual manner. The latter sutures may be removed on the eighth or ninth day. The sutures holding the uterus in place should remain in about three weeks. The uterus should be supported by a tampon of gauze before the stitches are removed and for several weeks afterward. The after treatment is the same as in any other form of abdominal section.

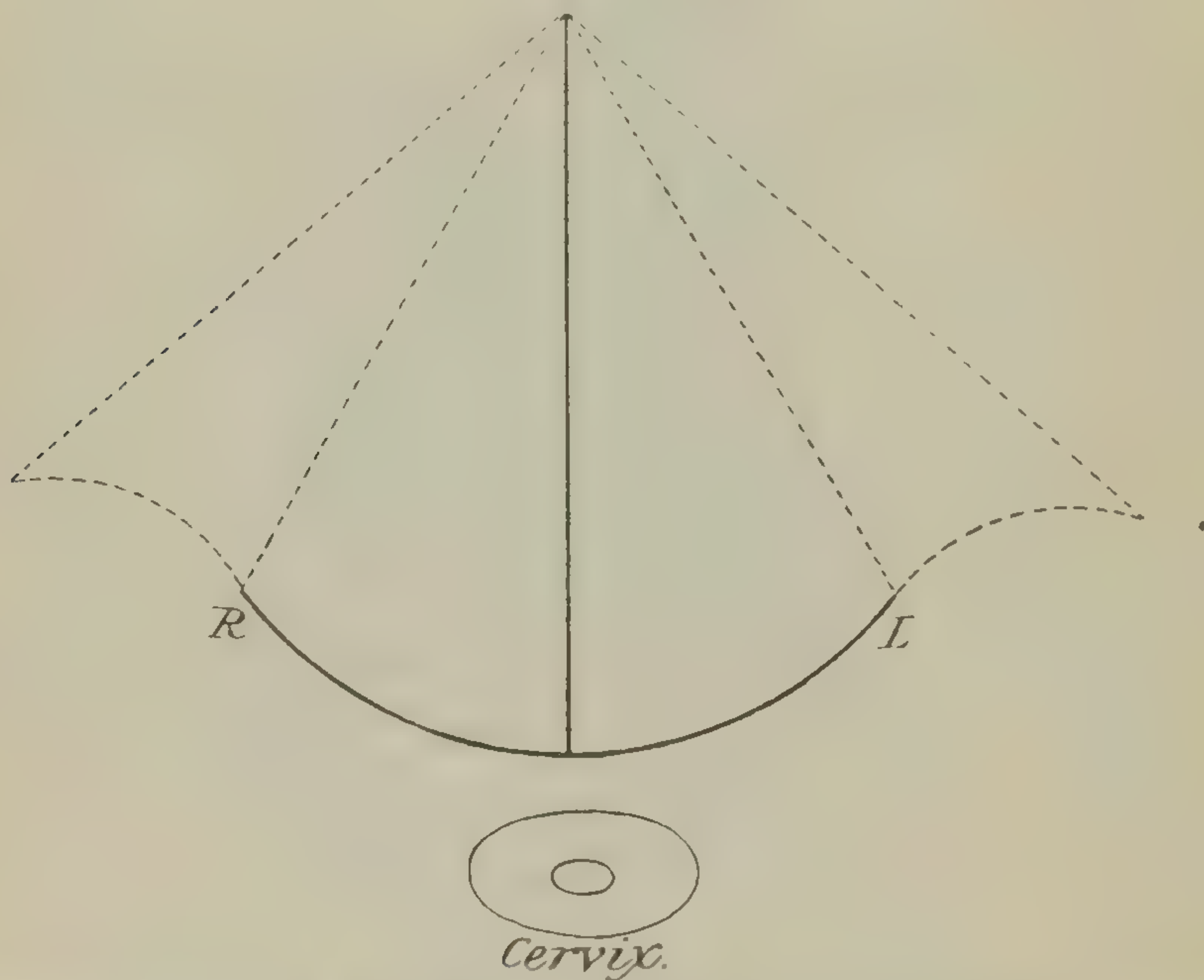


FIG. 88.—MACKENRODT'S OPERATION.

The heavy lines represent the two incisions. The dotted lines represent the flaps turned back.

Mackenrodt's Operation for Supravaginal Fixation.
—Antiseptic precautions having been observed, the patient is placed in the dorsal position and the uterus drawn forward and downward by means of vulsellum forceps. A curved transverse incision is made just in front of the cervix ; at right angles to this and in the center of the first incision, a second is made in the median line to just behind the urethra. The two flaps formed by these incisions are then dissected loose and turned back. By

means of the finger the bladder is loosened. One or two silk sutures are then passed, first through the vaginal wall just outside the flap on one side, then through the anterior uterine wall just above the internal os, lastly through the vaginal wall on the other side. The uterus which has previously been replaced and held in position by tampons is drawn forward and the sutures tied. The flaps are then brought together and united by sutures of catgut or silk. Care must be taken not to injure the bladder.

Schücking's Colpohysteropexy or Colpohysterorhaphy.—This operation consists in replacing the uterus by means of a hollow sound. A needle is then introduced through the sound so as to penetrate the anterior wall of the uterus and the anterior vaginal culdesac just in front of the cervix. A stout catgut ligature is then passed through the needle and the instrument withdrawn carrying the ligature with it. The ligature is then tied. This operation is generally condemned because of the dangers of injuring the bladder and of sepsis.

Methods for Retaining the Uterus in Position.—In many cases where the uterus is movable, not bound posteriorly by adhesions, it will after careful replacement be self-retaining, the pressure of the intestines and the "intraabdominal pressure" furnishing all the necessary means of retention. As aids in the after treatment of such cases it would be well to advise the use of an abdominal supporter, and the swinging of the skirts from the shoulders instead of the usual method of fastening around the waist. All intense muscular efforts should be avoided. The general system should be sustained by tonics, general and local, and good food. The bowels should be carefully regulated so as to avoid all straining at stool. Where traction is made on the uterus from below by prolapse of the vaginal canal, the surplus mucous membrane should be removed by means of one of the operations already described.

The Pessary.—The pessary is an instrument designed to aid in holding the uterus in correct position. It should never be used to replace a uterus. Pessaries are usually made of hard rubber, block tin, or celluloid, and are of various designs. Those most frequently employed in retrodisplacements are the Hodge-Smith and Thomas. In retrodisplacements, pessaries act by pushing up the mucous

membrane of the posterior vaginal fornix, and this in turn draws the cervix upward and backward. It is necessary, in order to have the pessary do its work properly, that the uterus shall have been replaced first.

Indications for the Use of the Pessary.—The uterus must have been replaced and freely movable. The pelvic floor must be in-

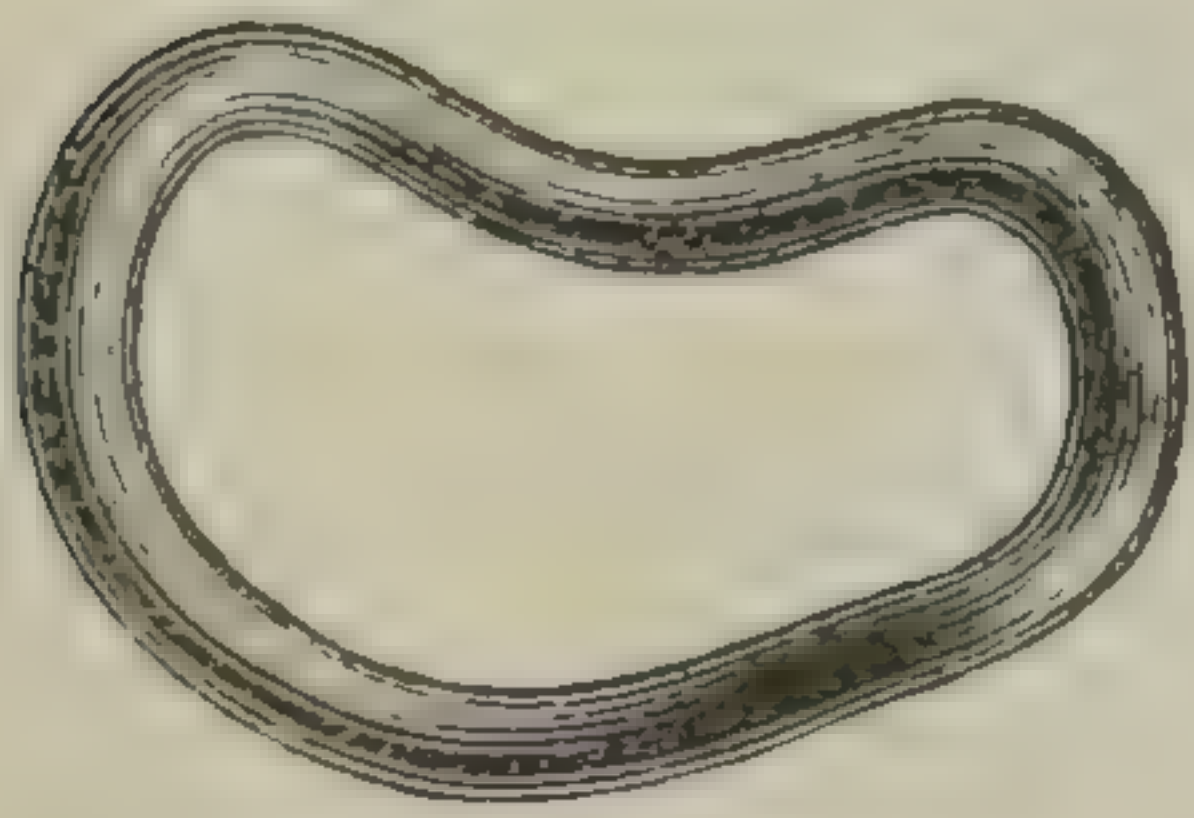


FIG. 89.—HODGE PESSARY.



FIG. 90.—THOMAS PESSARY.

tact. There must be no inflammatory condition in the uterus or tubes. No prolapse of the ovaries.

Contraindications.—Diseases of the uterus or appendages, vaginitis, urethritis, lacerations, of the pelvic floor, cystitis, adhesions, and existing retrodisplacements.

Method of Introduction.—The size of the pessary must be ascertained approximately by inserting two fingers in the vagina and abducting them so as to include the distance from the posterior culdesac to the point on the anterior wall at which the pessary is to rest. The fingers should be withdrawn and the distance between them measured. The pessary may be inserted with the patient either in the Sims' or dorsal positions. The bowels and bladder must be empty. The pessary should be covered with some unctuous substance, and should be steadied by the thumb and index finger of one hand while the perineum is somewhat depressed with the other. The broad end is introduced first and in the oblique axis of the vulva so as to avoid pressure on the urethra. After passing the vulva, the hand holding the pessary is carried well up in front of the pubes, the pessary being carefully turned crosswise. When in front of the cervix, one of the supporting fingers should be placed against the anterior bar of the pessary, causing it to dip down, passing first beneath the cervix, then raising the posterior bar so as to pass behind it and push the posterior vaginal fornix well up.

When in position, the anterior bow of the pessary must not make pressure on the bladder, but should be curved downward and should take its support from the pubic rami. The depression in the anterior bow should be so adapted as to avoid pressure on the urethra. After the pessary is in position, the patient should be placed in the dorsal position and one finger should be passed around the outer edge of the pessary. If this can be done easily the instrument is not too large. After fitting the pessary, it is well



FIG. 91.—INTRODUCTION OF PESSARY, FIRST STAGE.

to have the patient stand, walk and sit with one leg crossed over the other. If any pain is caused, the pessary should be withdrawn and refitted or another introduced. It is well also to examine the patient once or twice in standing position to see if the instrument fits well. Hard rubber pessaries may be molded to any shape by immersing them in boiling water or holding over a lamp until the rubber softens.

After the pessary has been inserted, the patient should be in-

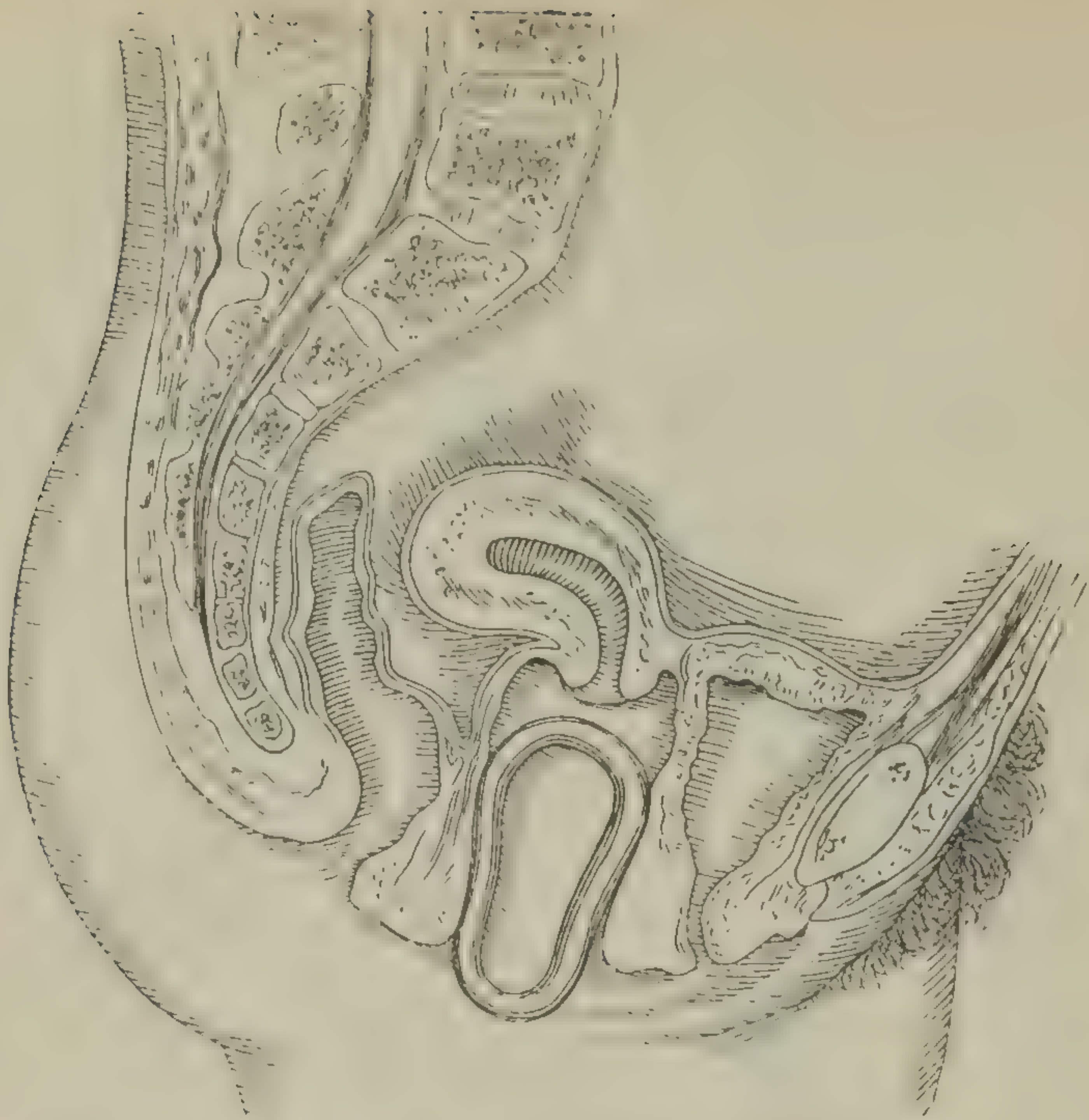


FIG. 92.—INTRODUCTION OF PESSARY, SECOND STAGE.



FIG. 93.—INTRODUCTION OF PESSARY, THIRD STAGE.

structed to return to the office once or twice a week for a month, after which time the intervals between her visits may be gradually increased until she is seen about once a month, at which time the pessary should be taken out and cleansed. The pessary should be removed if the slightest pain is caused by it, and if the patient lives at a distance she should be instructed to remove it herself



FIG. 94.—INTRODUCTION OF PESSARY, FOURTH STAGE.

under these conditions. The patient should also be instructed to take cleansing injections of hot water containing some mild antiseptic.

PROLAPSE OF THE UTERUS.

In prolapse, the uterus is displaced downward, its long axis at the same time being changed so as to correspond with that of the vagina. Downward displacements are frequently accompanied by prolapse of the posterior vaginal wall (rectocele), and of the anterior vaginal wall with the bladder (cystocele). For convenience in description, prolapse of the uterus is divided into three degrees: in the *first*, the cervix rests upon the pelvic floor, in the

second, it appears at the vulvar orifice, in the *third* degree, the organ is entirely outside the body and hangs between the thighs. The third stage is also known as *complete prolapse* or *procidentia*. Prolapse may be *acute* or *chronic*.

Causes.—The causes may be divided into *predisposing* and *exciting*.

Predisposing Causes.—Frequent or improperly managed labors, habitual constipation, hard work, improper arrangement of dress, advanced age. Severe tenesmus from dysentery is also given as a cause.

Exciting Causes.

1. Those produced by *lack of uterine support*, such as is caused by destruction of the perineum, loss of tone of the vaginal walls, relaxation of the uterine ligaments, absorption of fat from pelvic areolar tissue, atony of abdominal or respiratory muscles, an abnormally large pelvis.

2. Those produced by *increase of uterine weight*, such as *tumors*, either in or on the uterus, pregnancy, hypertrophy, retained fluid in uterine cavity.

3. *Those which produce a descent of the uterus from pressure above*, as abdominal tumors, ascites, violent muscular efforts, straining at stool, tight or heavy clothing, violent coughing, etc.

4. *Those which produce traction from below*, as prolapse of the rectum, bladder, or vagina, an abnormally short vagina. The most common single cause of prolapse is a lacerated pelvic floor and perineum, accompanied by habitual constipation. In such cases attempts to relieve the bowels by straining cause the feces to bulge out the rectal wall into the lumen of the vagina, the proper resistance of the latter being destroyed by the laceration of the levator ani muscle and perineum. A continuance of this action tends to draw the cervix downward, while the bladder in front prevents its forward movement. Finally, relaxation of the anterior vaginal wall also occurs, resulting in cystocele. In the majority of cases, the rectocele appears first. Where cystocele is the first to appear the condition usually results from laceration of the anterior vaginal wall during delivery.

Pathology.—Decrease in the power of uterine support. Distention and eversion of the vagina with decrease in the power of its

sphincter and thickening of its epithelium. The uterus is enlarged from impairment of its circulation, its cavity is increased in size, hyperplasia of its areolar tissue may result. The endometrium becomes thickened, congested and inflamed.

Ectropion may occur.

Varicose degeneration of the vessels of the cervix may take

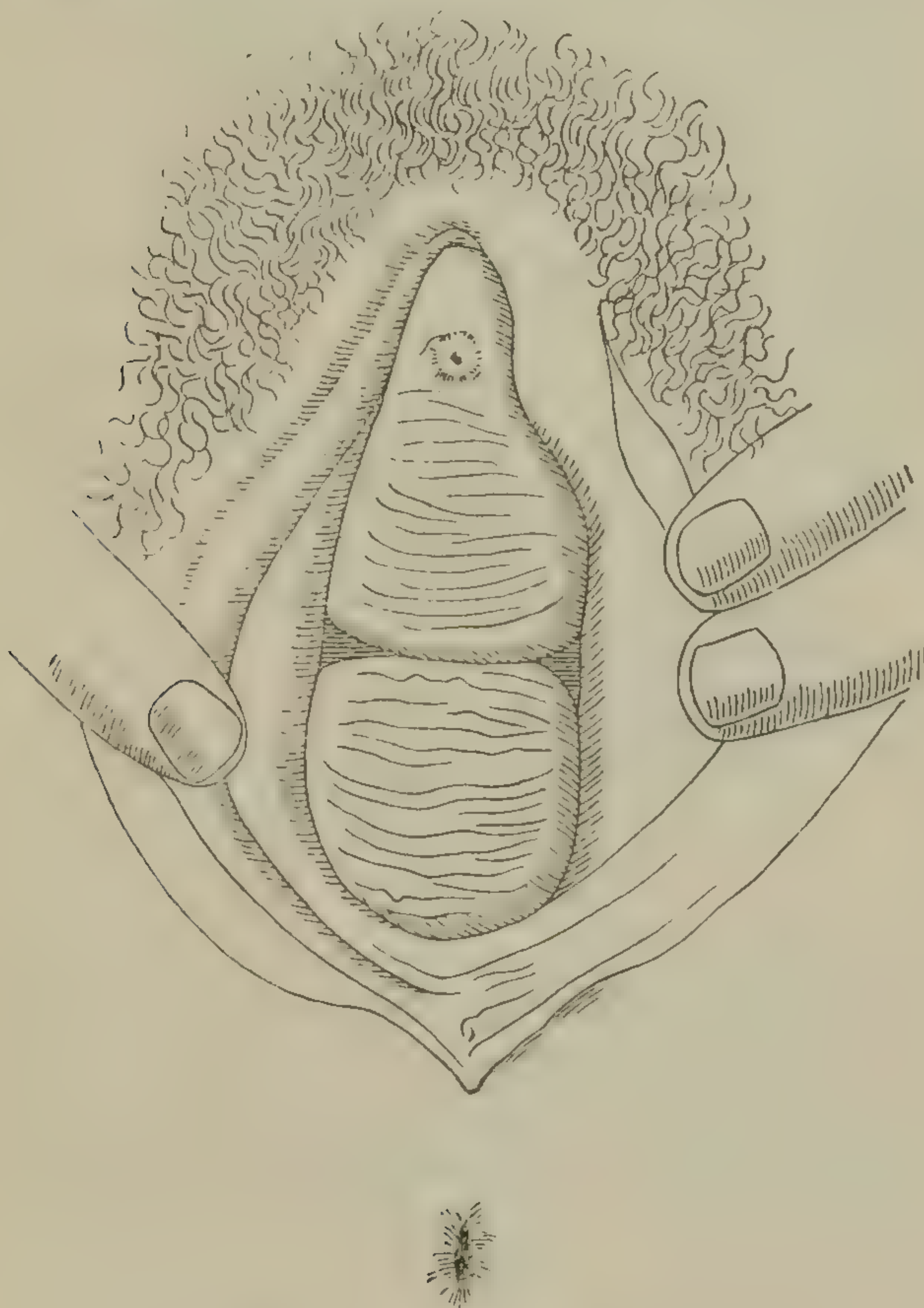


FIG. 95.—CYSTOCELE AND RECTOCELE.

place with consequent absorption of its proper tissue, ulceration may also occur.

Pelvic congestion from compression of the hypogastric veins.

Tension on the broad ligaments may produce obstruction of the ureters and hydronephrosis.

Occasionally, epithelioma from continued irritation of the cervix.

Varicocele of the pampiniform plexus from torsion of the broad ligaments. When cystocele is present, complete evacuation of the bladder cannot be obtained, and the result is dysuria, ardor urinæ and cystitis or retention of urine.

Symptoms.—In *acute prolapse* the symptoms are those of shock, severe pelvic pain and possibly hemorrhage.

In Chronic Prolapse.—A sensation of weight or “bearing down” in the pelvis; pain in the back or loins; pains radiating down the thighs with inability to walk; headache, occipital or coronal; rectal tenesmus; constipation; vesical irritability; increased leukorrhea; menstrual disorders may occur, but frequently do not; inability to lift heavy weights; nervous phenomena or absolute hysteria may occur; sterility is rare.

Physical Signs.—The uterus is seen partly or entirely protruding from the vagina, according to the degree of the prolapse. In prolapse of the first and second degrees, a protrusion of the anterior wall at the ostium vaginæ occurs, the cervix is found lower than normal. When laceration of the pelvic floor has taken place, the posterior wall also protrudes. In prolapse of the third degree, the uterus is covered by the anterior and posterior vaginal walls and is accompanied in its descent by the lower wall of the bladder and anterior wall of the rectum. The cervix can be recognized by the external os, it is enlarged, inflamed, more or less eroded and the lips everted.

Bimanual Examination.—The vaginal hand will demonstrate the presence of the uterus in the vagina with more or less eversion of the latter. The uterus is in a state of retroversion. The vaginal canal is shortened. The abdominal hand will fail to find the fundus uteri in its normal position. The broad ligaments are found tense.

By passing a sound in the bladder and a finger in the rectum, the two meet without the interposition of the uterus.

Diagnosis.—Prolapse of the uterus must be differentiated from

1. Inversion.
2. Polypus.
3. Infravaginal elongation of cervix.

Inversion.—Inversion should be distinguished from prolapse, by the shape of the mass, the largest circumference of which is

below in inversion, like an inverted pear. The presence of a constricting band or collar formed by the cervix at the highest part of the mass. The absence of the cervical canal and the presence of the openings of the Fallopian tubes. Pressure made in the anterior rectal wall will sometimes demonstrate a cup-like depression in the intrapelvic cervix.

Polypus.—Bimanual examination shows the fundus uteri in normal position. The cervical opening presents itself *above* the tumor.

Infravaginal Elongation of the Cervix.—The fundus is in normal position. The introduction of a sound will demonstrate the increased length of the uterus. Vaginal examination will show the cervix elongated.

Treatment.—Place the patient in the knee-chest or dorso-sacral position (the former is to be preferred), and replace the uterus. In cases of acute prolapse, the vagina should be lightly



FIG. 96.—BRAUN'S COLPEURYNTER.

packed with aseptic gauze or cotton and an ice-bag placed upon the suprapubic region. Symptoms of internal hemorrhage or shock should be treated in the usual manner.

In chronic prolapse, where excoriations exist it is better after replacement, to treat the ulcerations before applying permanent support. This should be done by applications of iodine or boric acid. Frequently these ulcerations will disappear of themselves after the uterus has been replaced for some days. In recent cases of slight prolapse, where the vaginal walls are but slightly relaxed, relief can be afforded by rest in bed and the use of tampons of lamb's wool, cotton or gauze (the first is the best), covered with an astringent ointment.

Among the many means devised for the retention of the uterus in position, Braun's colpeurynter has been especially recommended.

Before introducing the instrument the vagina should be thoroughly cleansed. The instrument should be covered with some unctuous substance to prevent excoriations of the parts. Before completely inflating the instrument with air, an ounce or two of water is introduced to prevent the gradual escape of the air. The uterus may also be supported by pessaries, such as those devised by Gehrung, Cutter, or Albert Smith.

Where the prolapse has been caused by relaxation of the pelvic floor due to lacerations, operative restoration of the same is indicated. Rectocele should be diminished by the use of Hegar's

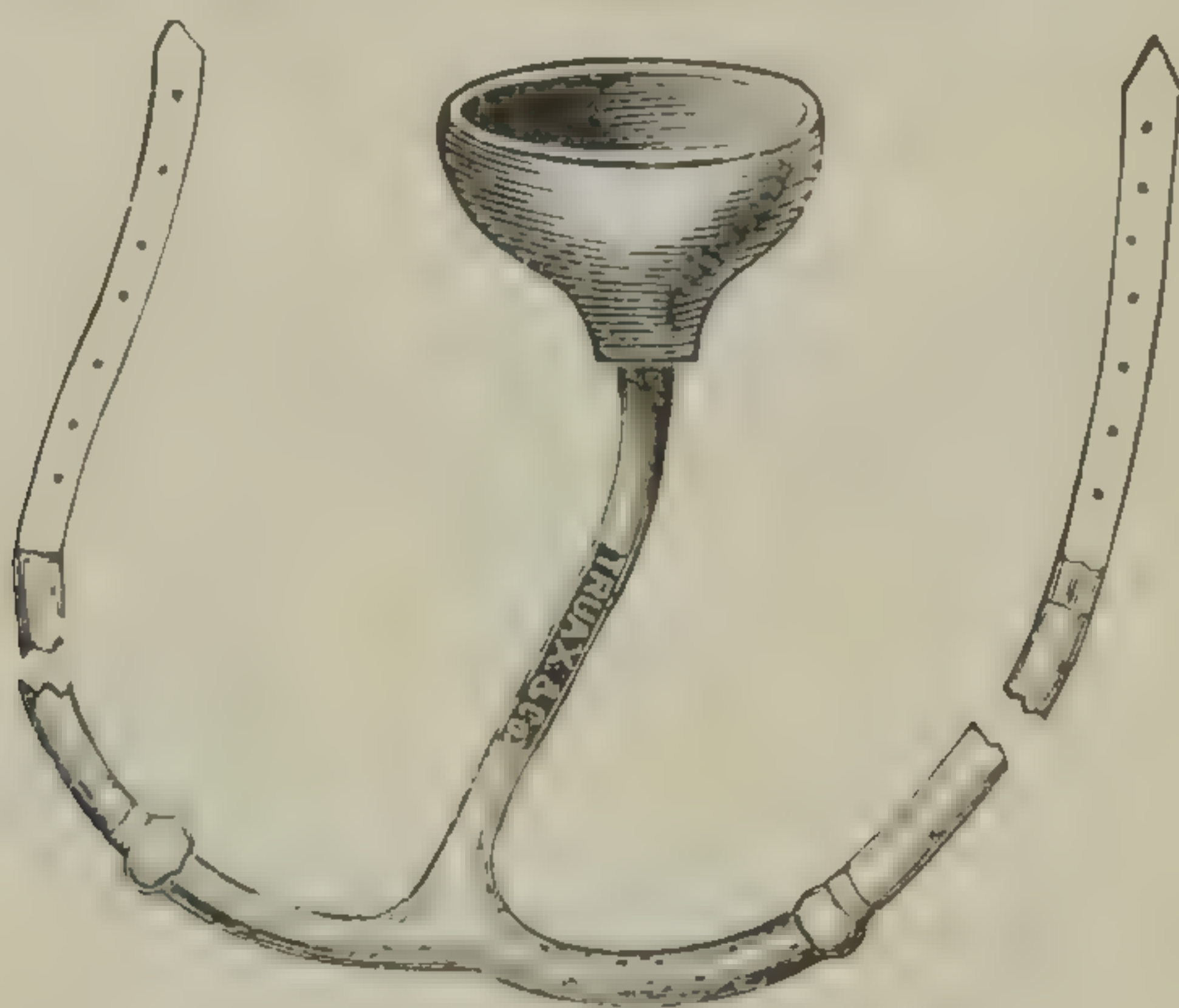


FIG. 97.—THOMAS-CUTTER PESSARY.

or Martin's posterior colporrhaphy, and cystocele by the anterior colporrhaphy of Stoltz, Emmet or Winckel. Alexander's operation for the shortening of the round ligaments has sometimes been successful as a cure for prolapse.

Enlargement and subinvolution of the uterus should be treated by curettement and packing, as in any other form of endometritis. The bowels should be kept freely opened. Pressure from above, due to tightly fitting clothes, must be relieved by the use of skirt supporters.

INVERSION OF THE UTERUS.

Definition.—"This dangerous and infrequent form of displacement consists of the turning of the uterus inside out" (*Thomas and Mundé*).

"The uterus is upside down and wrong side out" (*Parvin*).

Causes.—Are divided usually into *puerperal* and *nonpuerperal*.

Puerperal Causes.—Traction on the umbilical cord, excessive and unskilful abdominal pressure on the uterus in attempting to dislodge a retained placenta, paralysis of the placental site, general mismanagement of labor, relaxation and inertia of the uterine walls. The puerperal form is also described as *acute inversion*.

Nonpuerperal Causes.—Tumors, especially pedunculated fibroids of the fundus.

Varieties.—

1. *Slight* inversion is described as a small pitting in the uterine fundus.

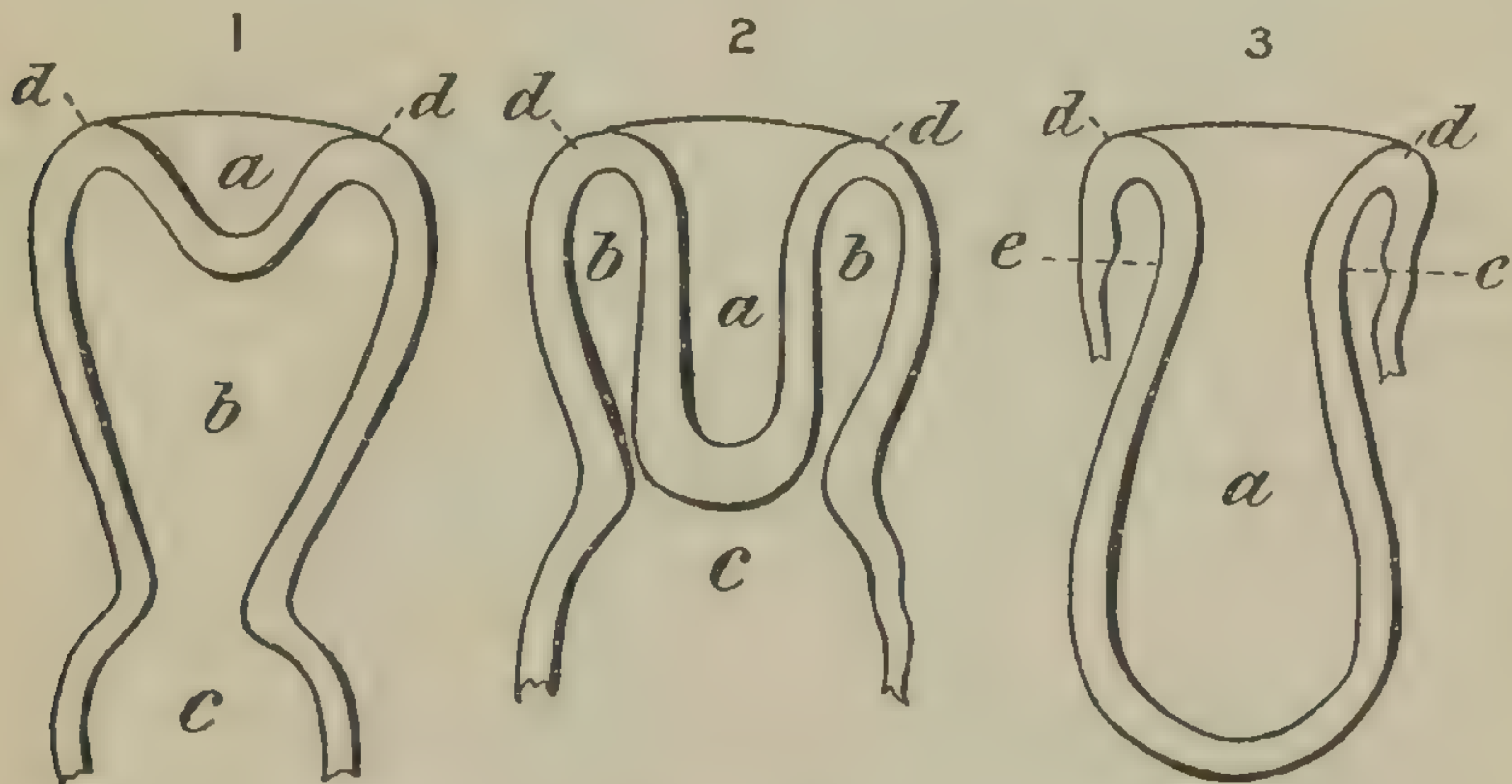


FIG. 98.—THREE DEGREES OF INVERSION.

1. Depression. 2. Introversion. 3. Complete inversion. *a*. Fundus uteri. *b*, *b*. Inversion partially filling the uterine cavity. *c*. Vagina. *d*, *d*. Mouth of inverted portion.—*From Parvin's Obstetrics.*

2. *Partial* inversion is where the fundus has descended to the internal os.

3. *Complete* inversion; the fundus has passed through the internal os, which forms a constricting ring around it. The uterus is turned inside out.

Inversion is also subdivided into :—

(*a*) *Simple.*—The body of the uterus is inverted, but the cervix and bladder retain their position.

(*b*) *Complicated.*—The body and cervix are both inverted and

the displacement is accompanied by prolapse and cystocele, or rectocele, or both.

Pathology.—The uterine structure becomes hyperemic and swollen, with a tendency to hemorrhage, the latter shown by the raspberry-red color and patches of ecchymoses in the mucous membrane. Increased constriction is apt to be followed by gangrene of the constricted portion. The pocket formed by the inverted body of the uterus may be occupied by the tubes, ovaries, or loops of intestine which prolapse into it. Hyperemia of the tubes and ovaries occurs. Erosion and ulceration of the prolapsed mucous membrane frequently takes place. The causes of death in fatal cases are: shock, hemorrhage, septicemia, or peritonitis.

Symptoms.—The symptoms of *acute* inversion are those of pain, hemorrhage, and shock.

In the *chronic* form, the symptoms are hemorrhage, either constant or occurring at irregular intervals, heavy dragging pains in the back and lower abdominal regions, difficulty in locomotion, micturition and defecation. Symptoms of anemia and exhaustion will appear as the case progresses.

Physical Signs.—An inverted uterus will appear as a soft, globular or pear-shaped mass, the largest bulk of which is *below*. Above, surrounding the constricted portion of the mass, a ring or collar, the internal os uteri, can be felt easily. The uterine mucous membrane can be recognized, and occasionally in complete inversion the openings of the Fallopian tubes can be seen. Palpation of the lower abdominal region above the pubes will fail to find the uterine body in its normal position; in its place will be found a hollow, funnel-like depression. The cervix is found considerably higher than normal by vaginal examinations.

By rectal examination, a hard body can be felt in the vagina; this tumor will be found to end abruptly above; frequently the constricting ring can be quite clearly distinguished. The fundus of the uterus cannot be felt.

In the chronic form, the uterine mucous membrane is spongy, soft, and bleeds easily, the cervix is thickened and the vaginal culdesacs obliterated.

Diagnosis.—The principal points in the diagnosis are the shape and position of the mass in the vagina, the constricting ring

at the upper part of it, *i. e.*, the internal os, and the absence of the fundus from its normal position. The symptoms and history of the patient must be taken into consideration.

Differential Diagnosis.—Inversion of the uterus must be distinguished from complete prolapse, uterine polypus or a fibroid growing from one lip of the cervix.

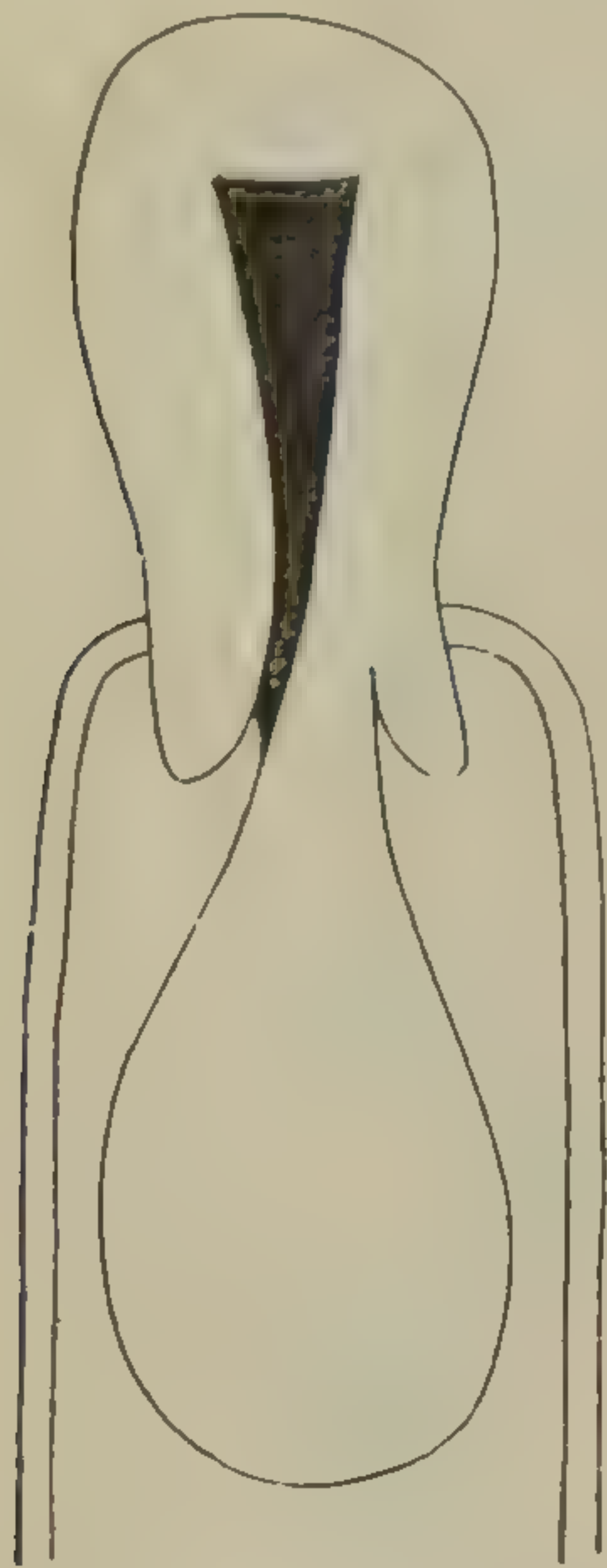


FIG. 99.—POLYPUS.

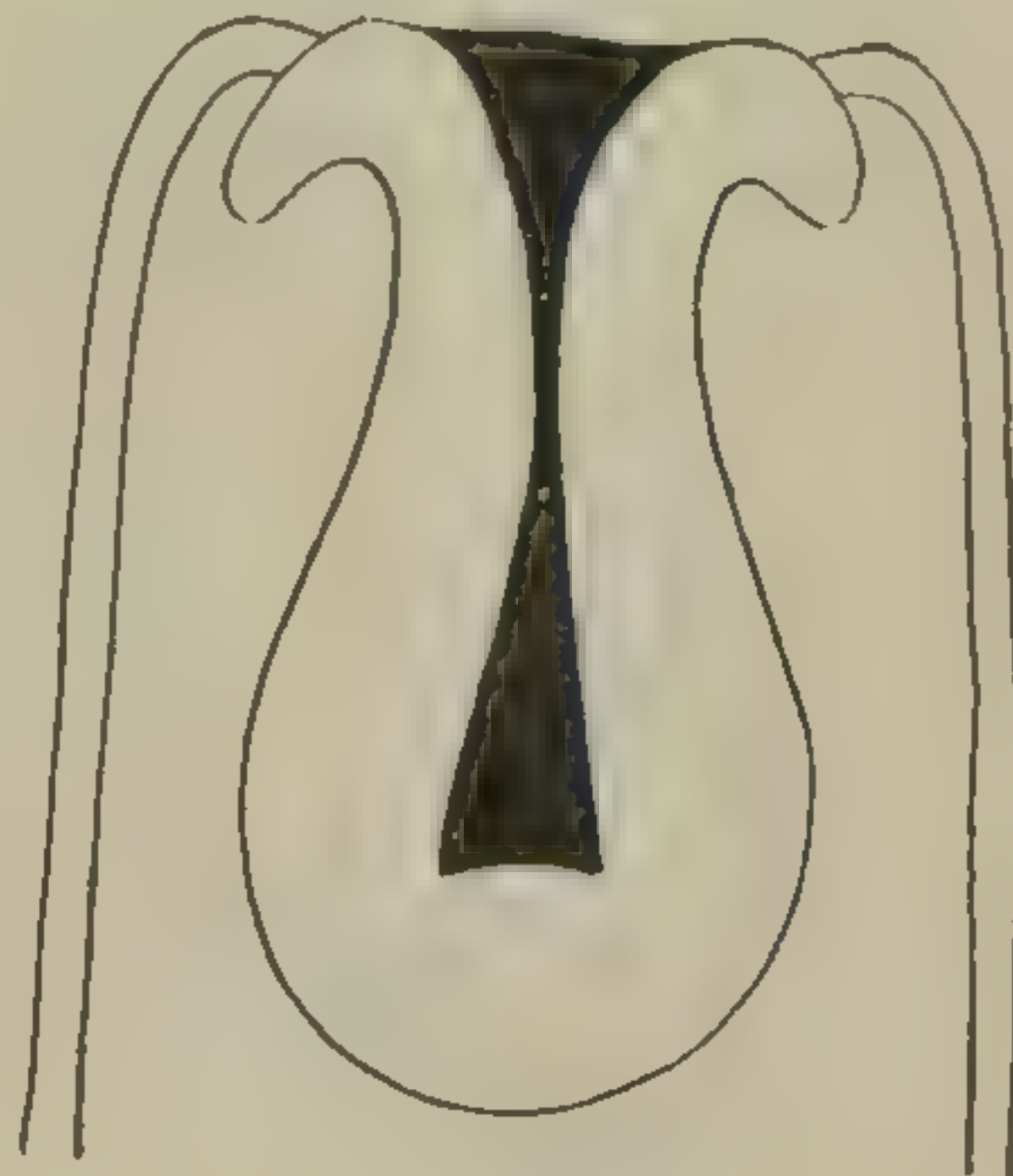


FIG. 100.—INVERSION.

PROLAPSE.

1. Largest part of tumor above.
2. No opening of tubes can be seen.
3. Obliteration of the vaginal culdesacs and probable prolapse of vaginal walls.
4. Not present.
5. A sound can be passed through the external os into the uterine cavity.

J

INVERSION.

1. Tumor is globular or pear-shaped, the largest part being below.
2. Openings of tubes may be seen.
3. Vaginal culdesacs not obliterated.
4. The upper part of the mass is surrounded by the ring or collar formed by the internal os.
5. Sound cannot be passed through the external os.

POLYPUS.

1. Bimanual examination will demonstrate the fundus uteri in its normal position in the abdomen.
2. The sound can be passed by the tumor and into the uterine cavity for a distance of about two and one-half inches.
3. Rectal examination demonstrates the uterine body to be in normal position.
4. By rectovesical examination the fundus will be felt between the bladder and rectum.
5. Puncture with a sterilized needle causes no pain.

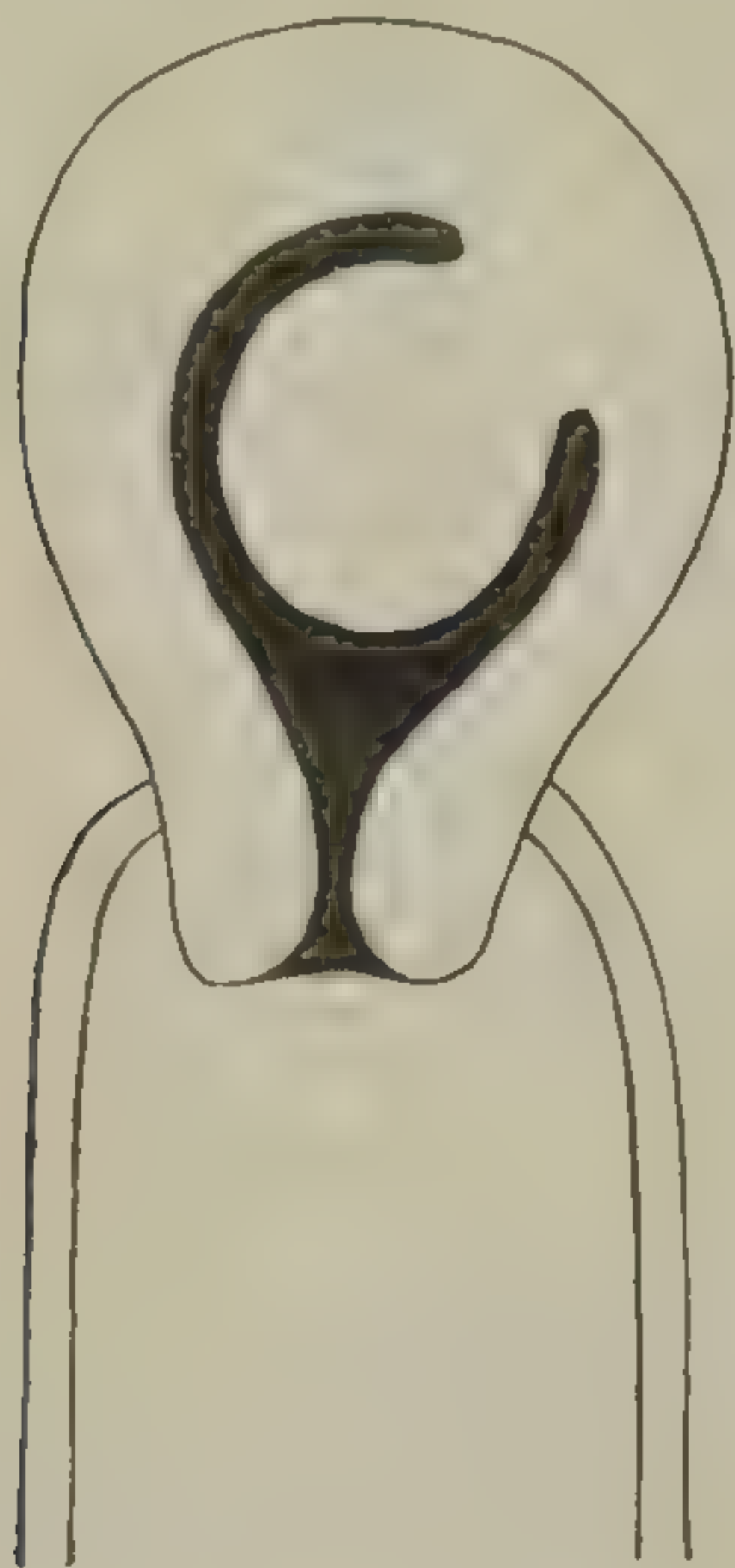


FIG. 101.—FIBROUS POLYPUS.

FIBROID POLYPUS.

1. Bimanual examination by rectum and vagina will prove the round uterine body in normal position.
2. The sound shows increase in size of uterine cavity.
3. Gradual appearance.
4. Does not occur from parturition.

INVERSION.

1. Fundus is absent and in its place will be felt a funnel-like depression.
2. The sound is arrested at the cervix, it can be passed all around the tumor.
3. Rectal examination demonstrates the uterine body to be absent.
4. The fundus cannot be felt between the bladder and the rectum.
5. Will cause pain.

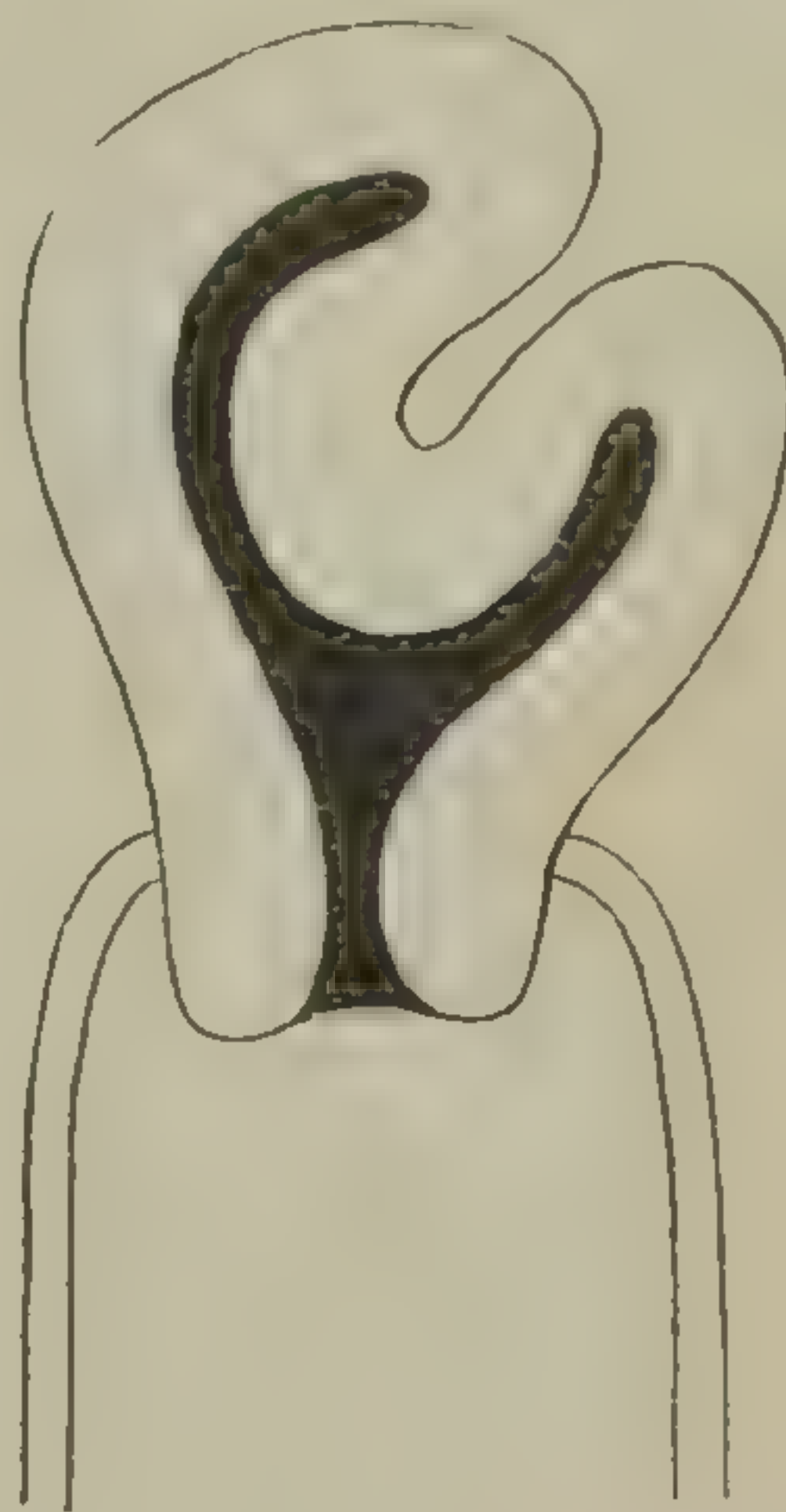


FIG. 102.—PARTIAL INVERSION.

PARTIAL INVERSION.

1. Rectoabdominal examination will reveal a small depression.
2. Length of uterine cavity is found diminished.
3. Sudden appearance.
4. Usually follows parturition.

The **prognosis** of inversion is always grave. In very rare instances spontaneous restitution may occur. In the acute form following childbirth, death occurs from shock or hemorrhage, if the condition is not quickly relieved. The prognosis of the non-puerperal chronic forms is somewhat better. Rupture of the vagina may occur from over enthusiastic efforts at replacement, or the patient may later die of general sepsis or peritonitis.

Treatment.—The chief indication is to replace the uterus as quickly as possible. The bowels should be thoroughly evacuated and the vagina flushed out with hot water; injections of tannin, alum, infusion of belladonna, or other astringents being advised by some.

Bimanual Method of Reduction.—The patient being in the dorsal position, the operator should cover one hand with some unctuous substance and gradually dilate the vagina until he can grasp the entire inverted uterus. With the other hand he makes firm pressure upon the abdomen over the ring which marks the noninverted cervix. With the vaginal hand, the operator makes firm, steady pressure upward, endeavoring to force the fundus through the constricting ring of the cervix. Occasionally, the size of the tumor can be somewhat reduced and the usual hemorrhage stopped by firm compression with the fingers. It should be remembered in replacing, that the part of the uterus which came out last should be replaced first. Occasionally the replacement can be started by pressure on one or the other uterine cornu.

Emmet's method consists in causing the finger encircling the cervix to make a decided motion of extension, counter-pressure at the same time being kept up by the fingers over the abdominal ring. Other methods of manual replacement have been devised by Noeggerath, Courty, and others.

Replacement by Instrumental Means.—Should efforts at manual replacement fail, the colpeurynter of Braun may be used with success. The instrument should be made aseptic, then inserted into the vagina and filled with water until it fits the pelvis snugly. More water is then gradually introduced into the instrument, the object being to exert continuous pressure. Instruments such as the cup and stem repositor and White's egg-beater reposi-

tor, have been devised. The former is very useful to hold the uterus in place, when partially replaced. The latter has been frequently used with success in the reduction. Its method of application can be seen in the accompanying cut.

Thomas's method consists in opening the abdomen over the cervix, and dilating the ring by means of a glove stretcher, while a hand in the vagina makes pressure on the inverted portion, forcing it up through the cervix.

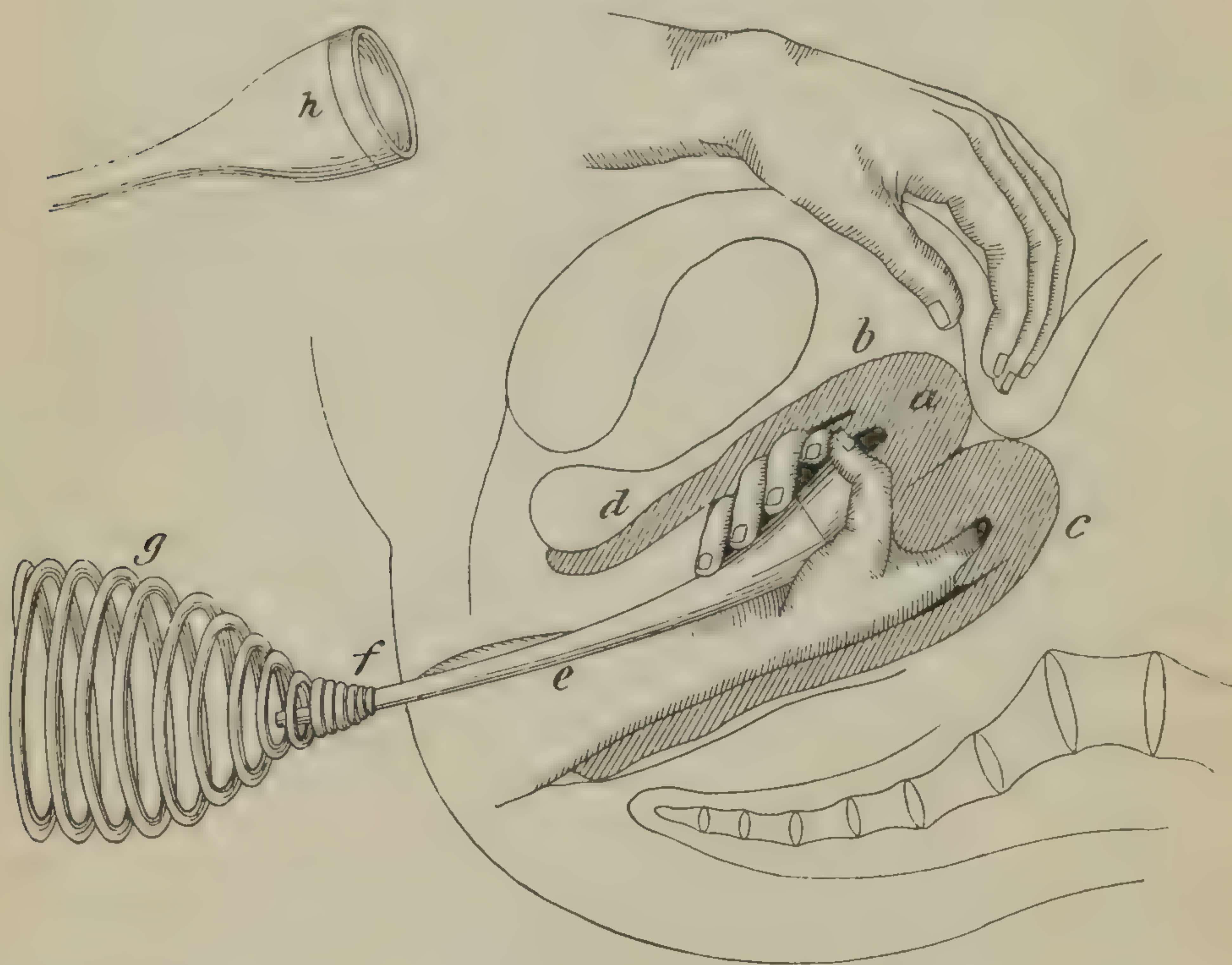


FIG. 103.—RAPID REDUCTION BY WHITE'S METHOD.

Operator grasps uterus (*a*) and presses his chest against spiral spring (*g*, *f*), which forces cup (*h*) of repositor (*e*) against fundus.

In endeavoring to replace an inverted uterus, no one method of reduction should be kept up for too long a time, as such efforts may be dangerous to the patient. When some part of the uterus has been replaced, this should be held in position by the cup and stem, the colpeurynter, or as advised by Emmet, by stitching the cervix together below the inverted portion.

Between the efforts at reduction, the patient should be given opium for the pain and kept in a state of absolute quiet. After all efforts have been unsuccessfully resorted to, vaginal hysterectomy may be necessary.

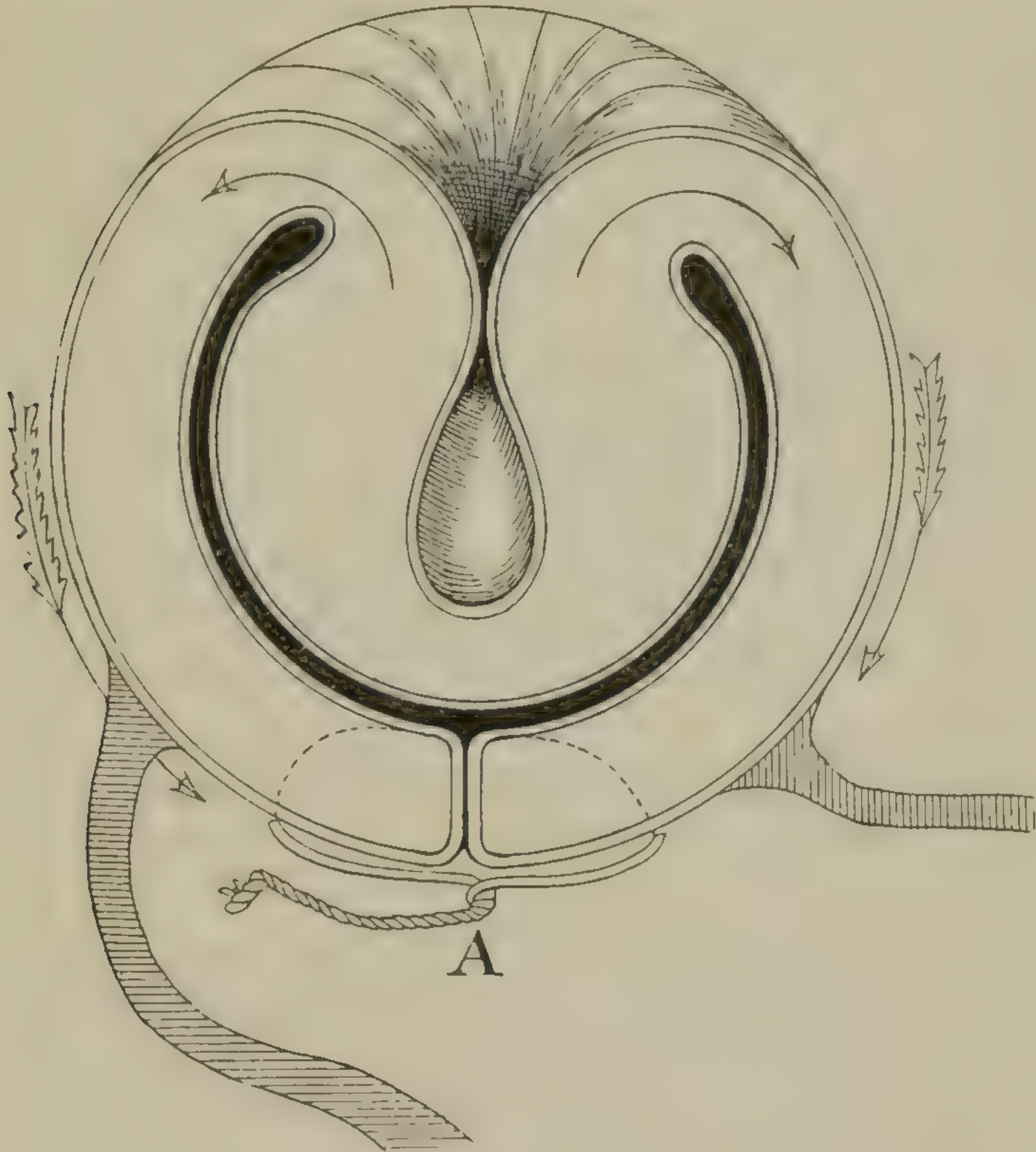


FIG. 104.—PARTLY RESTORED UTERUS SUSTAINED BY CLOSURE OF OS EXTERNUM.

DEVIATIONS IN FUNCTION.

“Abnormal changes in the menstrual flow are to be regarded only as symptoms, which have their origin often in opposite conditions and require discrimination in their treatment” (Emmet).

AMENORRHEA.

The absence or marked deficiency of menstruation at a time when it naturally should appear.

Causes.—May be divided into physiological and pathological.

The physiological causes, pregnancy, lactation, and the menopause, will not be treated here, as they belong to the subject of obstetrics.

Pathological Causes.

1. Taking cold, especially at the menstrual period.
2. Severe shock, either mental or physical, such as fright, great surprise, etc.
3. May be caused by various diseases, such as typhoid fever, nephritis, diabetes, tuberculosis, pelvic peritonitis or general sepsis, syphilis, chlorosis, etc.
4. From obesity.
5. Luxurious mode of life.
6. Overtaxing the nervous system.
7. Stenosis or atresia of the cervical canal.
8. Lack of development of uterus, tubes, or ovaries.
9. The discharge of blood may take place from other organs than the uterus, as the nose, lungs, bladder, rectum, stomach, nipples, or skin.

When the discharge of blood from other organs accompanies that from the uterus, the condition is known as *supplementary menstruation*.

When the discharge occurs from other organs only, no discharge from the uterus taking place, the condition is called *vicarious menstruation* or *xenomenia*.

Emansio Mensium is a condition in which menstruation has never appeared.

Suppressio Mensium is where the menstruation has appeared but fails to reappear.

Symptoms.—The symptoms of amenorrhea are generally those of the primary disease causing the condition. When it arises from taking cold, such symptoms as fever, rather severe headache, pains in the back, pelvis and down the thighs, irritability of bladder and bowels generally appear. Hemorrhages from other organs are apt to occur. When the condition arises from chlorosis, we have usually anemia, general paleness of the skin, lips, conjunctivæ,—of the mucous membranes, in fact, generally. In other words, the symptoms general of chlorosis. The form of amenorrhea arising from *obstruction*, either due to a resistant hymen

or closure of the cervical canal, is characterized by severe attacks of pain once a month with coincident enlargement of the uterus. In the intervals between the periods at which menstruation ought to appear, the uterus goes back to nearly its normal size.

Diagnosis.—Great care must be exercised to distinguish pathological amenorrhea from that arising from pregnancy. The history of the patient should be carefully taken and a thorough examination made to determine the cause of the condition. Examinations of the lungs, heart and urine should always be made in patients with absence of menstrual flow. Careful examination of the abdomen by palpation and auscultation should also be made. When the condition is persistent, the patient should be referred to another visit and a second examination made. In these cases, the fetal heart sounds and movements should be diligently sought for, unless some other cause for the amenorrhea can be found.

Treatment.—When the condition arises from cold, the patient should take warm sitz baths or soak the feet and legs in hot mustard water. Hot applications to the abdomen, and to the legs and thighs frequently give relief. Hot vaginal injections and a saline laxative will be found useful. When the amenorrhea arises from *shock*, the patient should be kept in an atmosphere of quiet, such agents as bromides, manganese, massage and later exercise on horseback, are advised. When arising from disease, the treatment of the amenorrhea is that of the condition causing it. When occurring from lack of development of the uterus, Simpson's galvanic pessary and Faradic electricity are advised by some. Among the drugs most commonly used in the treatment of amenorrhea, aloes or aloin, myrrh and iron stand in the lead. When the condition arises from anemia, a good prescription is as follows:—

℞. Aloin, gr. $\frac{1}{4}$
 Vallet's mass,
 Myrrh, āā gr. j.

DOSE.—Two to four, and to be repeated as needed.

Blaud's pill, permanganate of potash, oxygen and arsenic are also of great use in these cases. The patient should also be placed on a nutritious diet, including considerable meat. She should be allowed plenty of fresh air, regulated exercise and general good

hygiene. Where the girl is overworked at school or in the factory or store, she should be taken away and a more healthful life prescribed. In *gouty or rheumatic subjects*, guaiacum, sodium salicylate, strychnin, indigo, etc., have their advocates. In *nervous subjects*, bromids, camphor, cannabis indica, etc., are useful.

Hypnotism is said to have been used with success in some cases. Amenorrhea arising from *obstruction* due to a resistant hymen or stenosis or atresia of the cervical canal, should be treated by incising the obstruction. This subject will be taken up in the chapter on the deviations in the uterine structure.

MENORRHAGIA AND METRORRHAGIA.

Menorrhagia is an abnormally increased menstrual discharge.

Metrorrhagia is a discharge of blood from the uterus at other than the menstrual periods.

Causes.—(a.) *Those which affect the uterus primarily*, as—

1. Endometritis, especially the granular or fungoid form.
2. Interstitial, or submucous fibroid tumors or polypi.
3. Para- or perimetritis.
4. Retained secundines from an incomplete abortion.
5. Subinvolution.
6. Malignant disease.
7. Chronic inversion.

(b.) *Those which affect the uterus secondarily*, as—

1. Diseases of tubes and ovaries.
2. Renal, hepatic or cardiac disease, tuberculosis, the continued fevers, scurvy, etc.
3. Fecal impaction.
4. Hemophilia.
5. Ectopic gestation.

Treatment.—The cause should be sought for and treated. When the condition arises from endometritis, either alone or associated with subinvolution, the cervix should be dilated and the uterus curetted and washed out with an antiseptic solution, such as creolin, 3j to the quart; lysol one per cent., creasol, etc., and packed with iodoform gauze. (See *Treatment of Endometritis*.)

Applications of astringents, such as, iodine, perchlorid of iron,

carbolic acid, etc., are advised by some authorities. The fluid extract of ergot and hydrastis in doses from 15 to 30 drops do good in some cases. Copious vaginal injections of hot water are very serviceable. When other means fail, the vagina should be tamponed with absorbent cotton. Fibroids and polypi require the removal of the tumor itself, or where this is impossible, the removal of the entire uterus. Malignant disease should be treated by vaginal hysterectomy.

DYSMENORRHEA.

Difficult or painful menstruation.

Varieties.—

1. Neuralgic.
2. Congestive.
3. Mechanical.
4. Membranous.
5. Ovarian.

I. NEURALGIC DYSMENORRHEA.

This form is usually found in neurotic subjects. It may arise secondarily from a general neuralgic diathesis, from malaria, gout, or rheumatism.

Symptoms.—The pain is usually most severe *before the onset of the flow or during the first few hours*. The seat of the pain is usually pelvic with extension down the loins, and its character sharp and steady, not expulsive. The pelvic pain may be accompanied by neuralgia in other parts of the body. The flow is usually steady and without clots. No signs of inflammation exist. Between the periods the patient is usually free from pain and no pathological changes occur.

Treatment.—Treat the condition causing it where this can be found. In gouty or rheumatic subjects, colchicum, guaiac, or sodium salicylate will be found useful. Where the dysmenorrhea arises from anemia, give iron and general tonics combined with a good diet and outdoor life. For the dysmenorrhea many remedies have been recommended. Among the best are the fluid extract of viburnum prunifolium, apiol in five-drop capsules, one capsule given night and morning. Some authorities advise that this be

given one week before the menstrual period. The tincture of pulsatilla in five-drop doses preceding menstruation. Arsenic in full doses has also been recommended. During the attack of pain, antipyrin or phenacetin do good. Tincture of cannabis indica in 25-drop doses has been found useful. External heat in the form of hot water bags or counterirritation with mustard are comforting to the patient. Hot sitz baths and hot vaginal injections should be tried. Sometimes the pain is so severe as to demand the use of morphia hypodermically, or the inhalation of ether.

2. CONGESTIVE OR INFLAMMATORY DYSMENORRHEA.

Causes.—

- (a) Exposure to cold or dampness.
- (b) Displacement of the uterus.
- (c) Plethora.
- (d) Engorged portal circulation.
- (e) Inflammation of the uterus.
- (f) Pelvic or uterine tumors.
- (g) Peritonitis.

Pathology.—The usual menstrual congestion has increased to such a degree as to become pathological.

Symptoms.—When the dysmenorrhea is acute, the attack comes on with severe pelvic pain, accompanied by a diminution or possibly complete cessation of the discharge. This pain generally lasts all through the period, except where occasionally a free flow relieves it. The constitutional symptoms accompanying are: some rise of temperature, pain in the head, nervousness, restlessness, and a full, rapid pulse. The skin is hot and dry, and the eyes suffused. There may be diarrhea or rectal or vesical tenesmus. When due to such causes as displacements, tumors, etc., the condition is marked by a certain sense of weight in the back and pelvis and some leukorrhea between the periods; these symptoms increase just before the flow begins and assume the type before mentioned.

Treatment.—During the attack give hot sitz baths or hot mustard foot baths. A full dose of a saline cathartic will be found of great benefit, either alone or preceded by moderate doses of calomel. Diaphoretics are indicated. Hot applications over the

abdomen do good. Displacements of the uterus should be corrected by the proper means. Plethora should be treated by cathartics or bloodletting and a low diet.

During the intermenstrual period, tampons saturated with glycerin and applied to the cervix, the patient being in the knee-chest or dorsal position will be found of great use. Scarification of the cervix has been advised. The continued use of copious hot water injections into the vagina given twice a day are useful. Where the dysmenorrhea arises from endometritis, curette the uterus, wash out with an antiseptic solution and apply iodine or carbolic acid, or better, pack the cavity with iodoform gauze. This should be done between the periods.

3. MECHANICAL OR OBSTRUCTIVE DYSMENORRHEA.

Definition.—Violent spasmodic pain, usually caused by some mechanical obstruction either in the vagina or cervix uteri.

Causes.—

- (a) Stenosis or atresia of the os uteri.
- (b) Atresia of the vagina due to inflammation, cicatricial bands or imperforate hymen.
- (c) Flexions of the uterus.
- (d) Tumors blocking up the cervical canal.
- (e) Spasmodic contractions at the internal os.

Pathology.—The accumulation of menstrual blood beyond the point of tolerance causes the uterus to contract violently in its efforts to expel the offending material.

Symptoms.—Sharp, spasmodic, cramp-like pains, like those of miscarriage, and followed by partial or complete relief when a quantity of blood is expelled. The point of obstruction can generally be demonstrated by the finger or sound. When stricture of the cervical canal is due to anteflexion, the obstruction

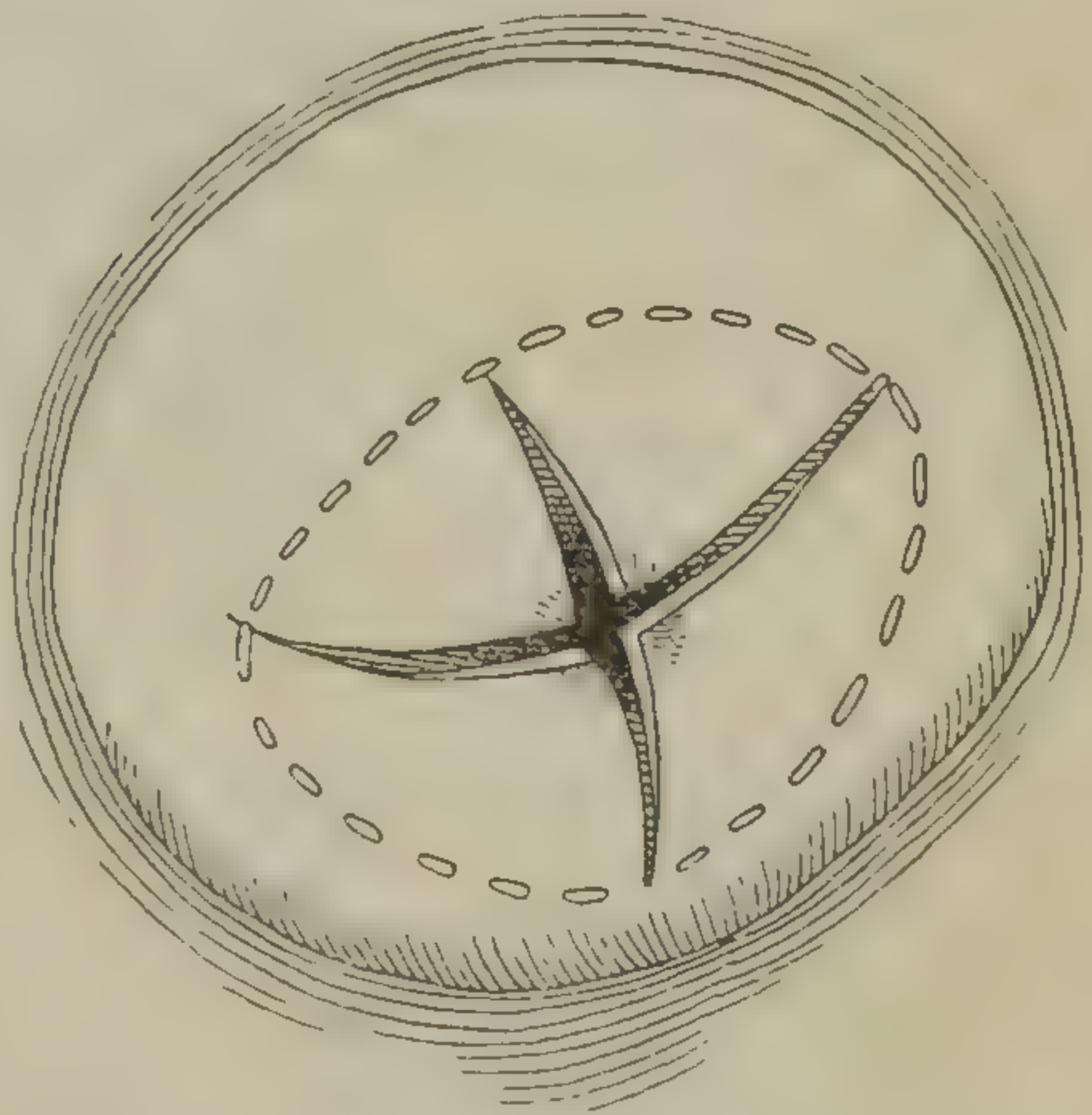


FIG. 105.—CRUCIAL INCISION OF EXTERNAL OS FOR DYSMENORRHEA.

is generally at the internal os. Congenital malformation of the canal usually shows the obstruction to be at the external os uteri.

Treatment.—When the condition is the result of atresia or stenosis the point of obstruction must be sought for and an opening made by means of a sound or tents. Narrowing of the cervical canal should be treated by dilatation by means of graduated solid dilators or the parallel-bladed instrument of Goodell. Where endometritis complicates the condition, the uterine cavity should be curetted, washed out, and packed with iodoform gauze.

Stricture of the cervical canal caused by flexions are to be treated by elevating the uterus and applying a suitable pessary, or when this is impossible, incision through the posterior wall of the cervix may be necessary to allow the escape of the fluid. The strictest asepsis must be maintained in all such operations.

4. MEMBRANOUS DYSMENORRHEA.

Definition.—"This variety of dysmenorrhea consists in the expulsion of organized material from the uterine cavity at menstrual periods. This material is found on microscopical examination to consist of the lining membrane of the uterus itself" (*Thomas and Mundé*). This condition is also known under the names of *exfoliative endometritis*, *endometritis dessicans*, *decidua menstrualis*.

Causes.—Obscure in many cases. It is, however, generally associated with a reduced general state of health.

Pathology.—According to Winckel, the membrane presents a smooth, reddish, inner surface upon which the orifices of the utricular glands can be seen with the naked eye. The membrane shows the changes characteristic of endometritis, hence the name of *endometritis dessicans*. The sac may be a complete or partial cast of the uterus, or may be expelled as a number of shreds of membrane. The microscope demonstrates the presence of utricular glands and interglandular tissue unlike that of the irregular decidual cells of pregnancy. No chorial villi are to be found.

Symptoms.—Severe continuous pain, increasing as the menstrual period advances. The pains are expulsive in character and are accompanied by dilatation of the os. After the discharge of

the membrane the pains cease. Menorrhagia is often coexistent. These symptoms recur at each menstruation.

Diagnosis.—The diseases with which membranous dysmenorrhea is most likely to be confounded are: *a.* Abortion. *b.* Blood or fibrous casts of the uterus. *c.* Exfoliation of the vaginal mucous membrane. It is very likely to be mistaken for the first. The chief diagnostic points are the regular recurrence of the disease and the absence of the chorial villi.



FIG. 106.—DYSMENORRHEAL MEMBRANE.

Treatment.—In the interval between the periods, curette the interior of the uterus and pack; afterward apply iodine in some form, carbolic, chromic acid, nitrate of silver, or zinc chlorid.

This operation will probably have to be repeated several times. Morphin may be given guardedly for the pain, or inhalations of ether may be necessary. Attention should be given to the general health.

5. OVARIAN DYSMENORRHEA.

The ovaries are frequently in a state of prolapse and may be inflamed. In many cases, however, no diseased condition can be found.

Symptoms.—The pain always precedes the flow, in some cases appears several days before it. The pain is felt down the thighs, and is accompanied by nervous or hysterical symptoms. The breasts may become tender and painful.

Treatment.—Warm sitz baths. Heat over the abdomen. Internally, bromides or monobromate of camphor at time of menstruation. Heat should be applied to the abdomen and feet. Thomas and Mundé recommend rectal enemata, such as the following :—

℞. Tr. asafetida, ℥ ij
 Tr. belladonna, gtt. xx
 Tr. opii, gtt. x
 Aqua tepidæ, ℥ iij.

Morphia and alcoholic stimulants should be avoided.

ANOMALIES OF THE UTERUS.

The uterus, vagina and Fallopian tubes are formed by the coalescence of the inferior portions of Müller's ducts. (See text-books on anatomy.) This union takes place about the second month of embryonic life.

At the earliest stage of its development, the newly formed uterus

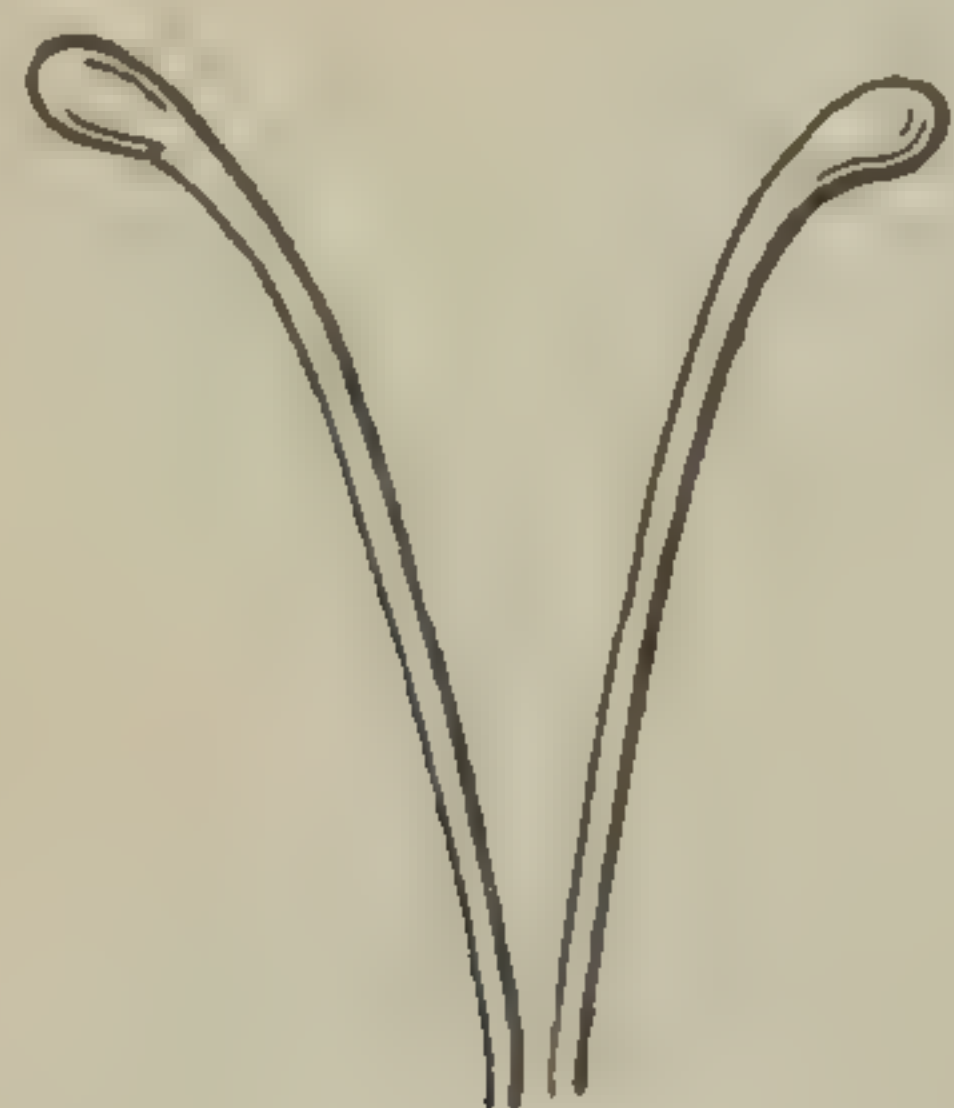


FIG. 107.—MÜLLER'S DUCTS.

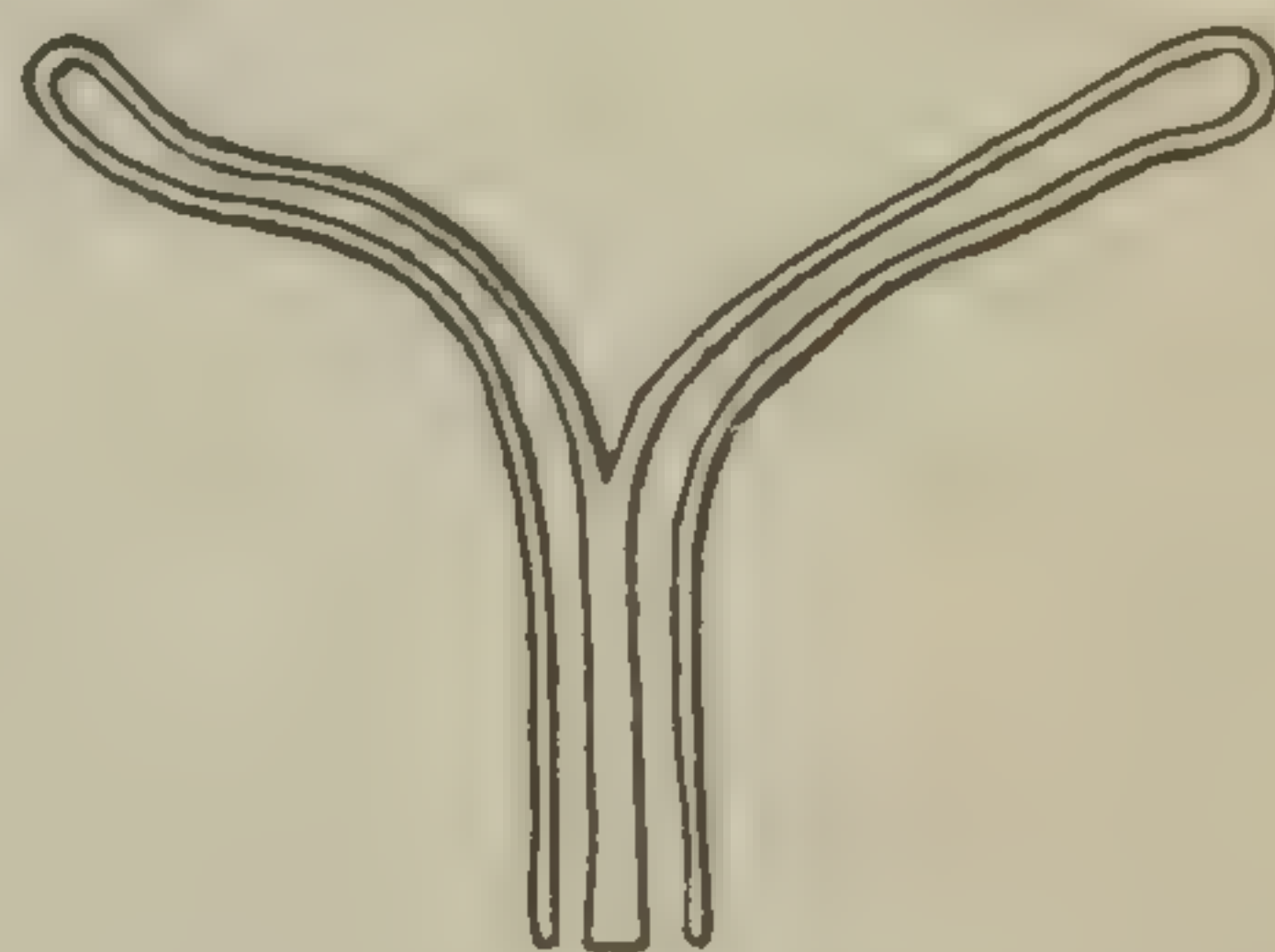


FIG. 108.—COALESCENCE OF DUCTS.

and vagina are separated into two canals, the septum between them being the united proximal walls of the two Müller's ducts.

Normally this septum is at a later period absorbed. Above this the branching portions of the two ducts form the cornua of the uterus, while the remainder becomes the Fallopian tubes. Anomalies in the formation of the internal genital organs are caused by an

arrest of development at some incomplete stage. Such malformations may be classified as follows:—

1. *Defectus Uteri*.—The uterus is totally absent.
2. *Rudimentarius Uteri*.—Arrested development leaves the uterus in a rudimentary state.
3. *Uterus Septus*.—The uterus is divided into two chambers.
4. *Uterus Unicornus*.—Only one horn has been developed, the Müller's duct on the other side is undeveloped, absent or atrophied.
5. *Uterus Bicornus*.—Resulting from nonunion of the part of Müller's duct which should form the corpus uteri. Each cornu and even the cervix may be divided into two compartments.

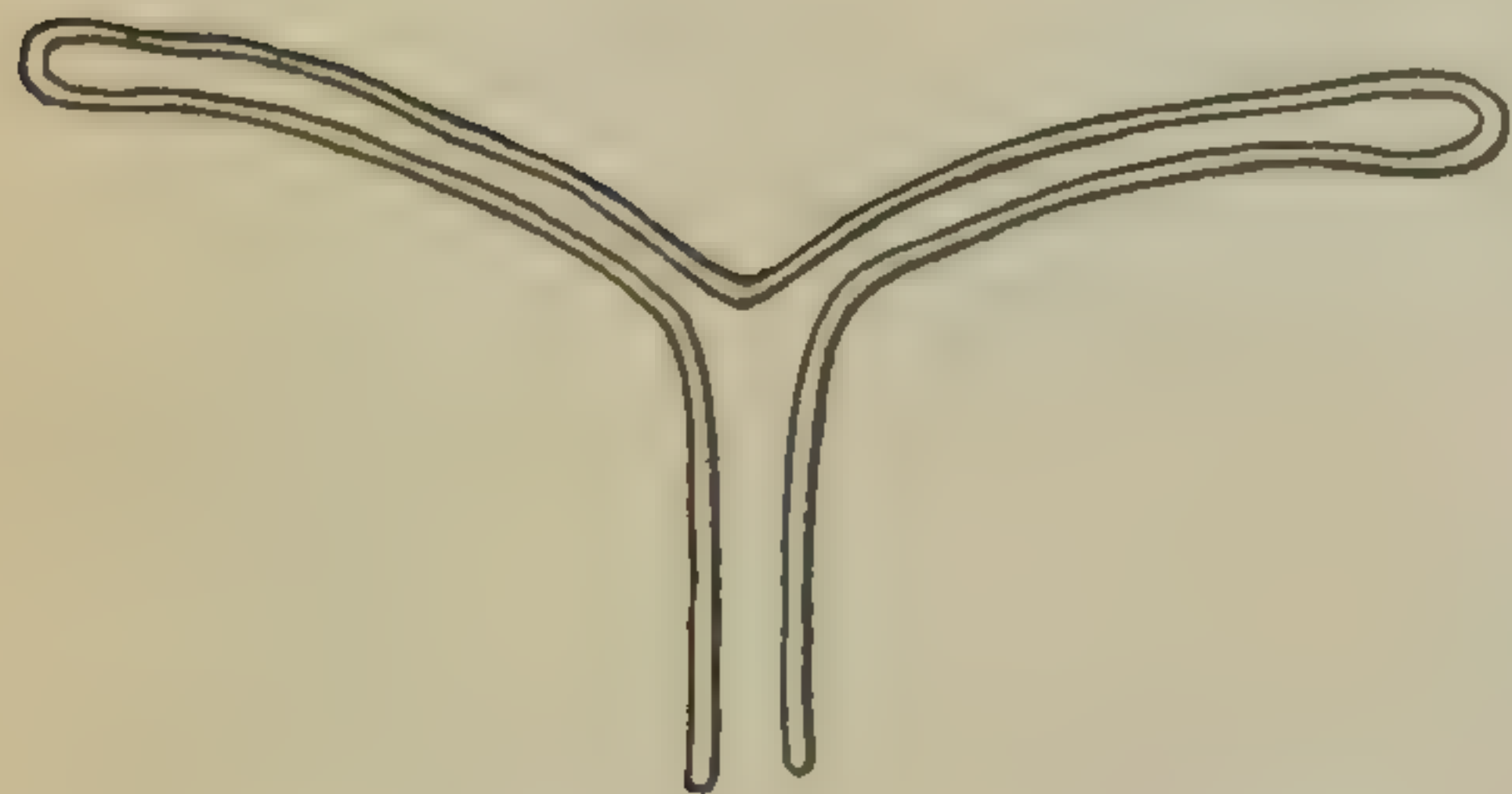


FIG. 109.—DISAPPEARANCE OF SEPTUM.

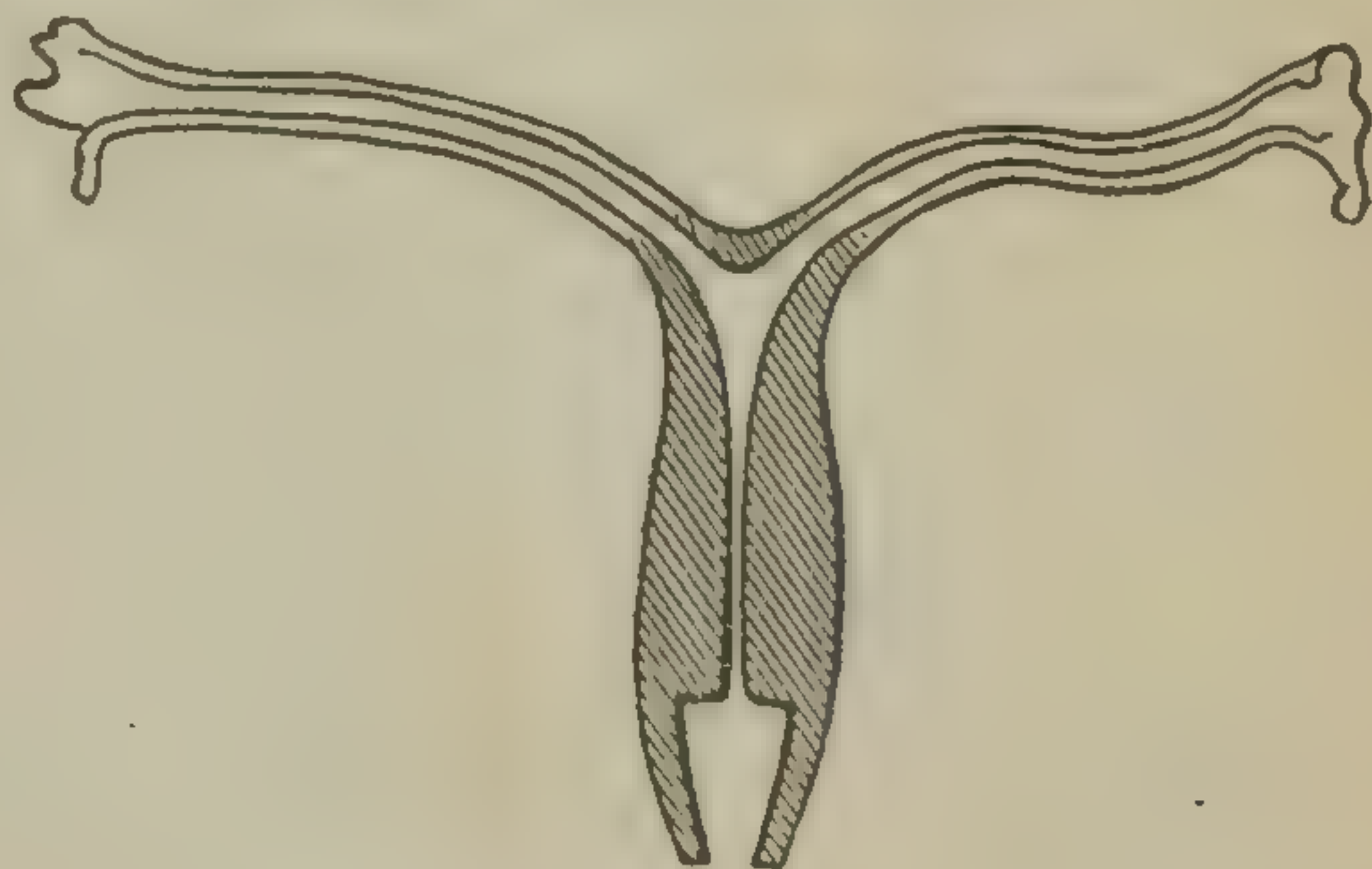


FIG. 110.—APPEARANCE OF FUNDUS AND CERVIX.

6. *Uterus Duplex or Didelphys*.—Two independent and complete uteri are developed. This condition is very rare.

7. *Infantile Uterus*.—The cervix is too long proportionately for the body. This increase in proportion remaining at birth.

8. *Congenital Atrophy of the Uterus*.—The uterus is atrophied, but the cervix and body retain their relative proportions.

ATRESIA AND STENOSIS OF THE CERVICAL CANAL.

By *atresia* is understood an entire absence of the cervical canal.

Stenosis is a narrowing of the canal more or less intense.

Obliteration of the cervical canal may be congenital or acquired and may be either partial or complete. Complete atresia is apt to be congenital.

Acquired stenosis may occur from the following causes:—

1. Senile atrophy. This form is found occasionally in old women.

2. From amputation of the uterine neck.
3. From injuries during parturition.
4. Use of caustics.

Results.—Where the stenosis is only partial, there will be pain, increased during the menstrual period and accompanied by an increase in the size of the uterus, caused by retained menstrual secretion. In old subjects, a thin watery secretion may thus be retained and produce the condition known as *hydrometra*.

Retention of the menstrual blood within the uterus gives rise to the condition known as *hematometra*, and when this blood undergoes suppurative action, it is known as *pyometra*.

Very rarely a gaseous decomposition of the fluid occurs, this being known as *physometra*. Retention may also be caused by certain forms of vaginitis and by imperforate hymen.

Secondary Consequences.—Extension of the fluid into the Fallopian tubes, producing rupture, peritonitis, pelvic hematocele. Rarely rupture of the uterus. Septicemia.

Treatment.—When partial stenosis exists, the canal must be found and stretched by means of graduated solid or glove stretcher dilators, and packed with iodoform gauze. Later it must be kept open by occasionally introducing the graduated dilators. When complete atresia exists, the patient should be anesthetized, placed in the lithotomy position, and after carefully cleaning the vagina antiseptically, an aspirator needle should be passed into the cavity of the uterus through the impervious cervix and a small quantity of the fluid withdrawn to confirm the diagnosis.

The cervical canal should then be opened by incisions made with a pointed bistoury and stretched by means of Ellinger's dilators. Many operators prefer the retained fluid to escape gradually. The vagina and uterus should then be washed out with an antiseptic solution and the cervix packed with iodoform gauze, which should be removed at the end of twenty-four to thirty-six hours. A glass or hard rubber plug should be worn for some time, to keep the canal open.

When atresia of the vagina exists, it is often necessary to dissect up between the vagina and rectum, making an artificial canal, or to draw off the fluid by puncture through the bladder or rectum.

DIFFERENTIAL DIAGNOSIS.

TUMORS PRODUCED BY STENOSIS OR ATRESIA. (The most common being Hematometra.)	FIBROUS TUMORS.	MALIGNANT GROWTHS.	OVARIAN CYSTS.	PREGNANCY.
1. Menstruation decreased or suppressed.	1. Menstruation increased.	1. Menstruation increased; characteristic watery discharge.	1. Menstruation slightly increased or not affected.	1. Menstruation suppressed.
2. Rapid growth, increasing regularly at menstrual periods, with slight decrease between them.	2. Slow growth, may increase slightly just before menstruation.	2. Slow growth, not affected by menstruation.	2. Slow growth, not affected by menstruation.	2. Rapid and regular growth.
3. Pain increased during menstruation.	3. Pain slight.	3. Pain severe and constant.	3. Pain more or less constant.	3. No pain.
4. Tumor intrauterine and dull on percussion, except in cases of physometra, when it is tympanitic.	4. Tumor attached to uterus, but outside of its cavity, hard, irregular and resistant.	4. Tumor apt to be in cervix, and can be felt by vaginal examination; microscope will demonstrate the structure.	4. Tumor extrauterine, and can be outlined by percussion.	4. Tumor intrauterine; fetal parts can be outlined.
5. General health not much affected.	5. Some deterioration in health.	5. Great deterioration in health.	5. Great deterioration in health.	5. Health not affected.
6. Sound can not be passed into uterus.	6. Sound can be passed into uterine cavity.	6. Sound can be passed into uterine cavity.	6. Uterine cavity empty.	6. Uterine cavity full; sound cannot enter unless force is used.
7. Objective and subjective signs of pregnancy absent.	7. Same.	7. Same.	7. Same.	7. Objective and subjective signs of pregnancy present.

SUPRA- AND INFRAVAGINAL HYPERTROPHY OF THE CERVIX.

Supravaginal hypertrophy consists of enlargement of the cervix above the vaginal insertion. It is most common in those who have not borne children. The causes are obscure. A certain amount of vaginal prolapse may occur, due to the elongation of the cervix and its increased weight. The symptoms are the same as in prolapse. Sterility is common.

In **Infravaginal hypertrophy** or **Hypertrophic elongation**, the size, particularly the length of the cervix, is increased within the vaginal tube. This form may occur as a complication of prolapse, from lacerations or occasionally in the nulliparous.

Symptoms.—A sense of weight and bearing down in the pelvis increased by walking. Leukorrhea, pain in the back, and the nervous disturbances common to uterine affections. Sterility.

Diagnosis.—Straining does not increase the prolapse as it does in the true form. The sound will demonstrate the increased length of the uterus. In the supravaginal form, the increased size of this part of the cervix can be felt through the vaginal culdesacs.

The infravaginal form can be clearly demonstrated by the finger. In both forms, a portion of the fundus remains in the abdominal cavity and can be felt by bimanual examination. The uterus is less mobile than in true prolapse and the dorsal or knee-chest position will not aid in replacement.

Treatment.—High amputation of the cervix. Where the vagina is greatly relaxed, it may be narrowed by anterior or posterior colporrhaphy. In some cases of supravaginal hypertrophy, curettage with a sharp spoon or wire loop will be followed by good results. The treatment should be directed to hastening involution of this part of the uterus. The patient should rest in bed or on a lounge for an hour or so, especially during menstrual periods.

Congestions should be prevented by suitable means. The general system must be kept in good order.

Pressure on the uterus from above by tight clothing must be relieved.

LACERATIONS OF THE CERVIX UTERI.

Lacerations of the cervix may be unilateral, bilateral, or stellate.

Unilateral tears are most common on that side of the cervix through which the occiput of the child has passed in labor. They are usually therefore found on the left side.

Causes.

1. Rapid expulsion of the child through the cervix before the latter is fully dilated.

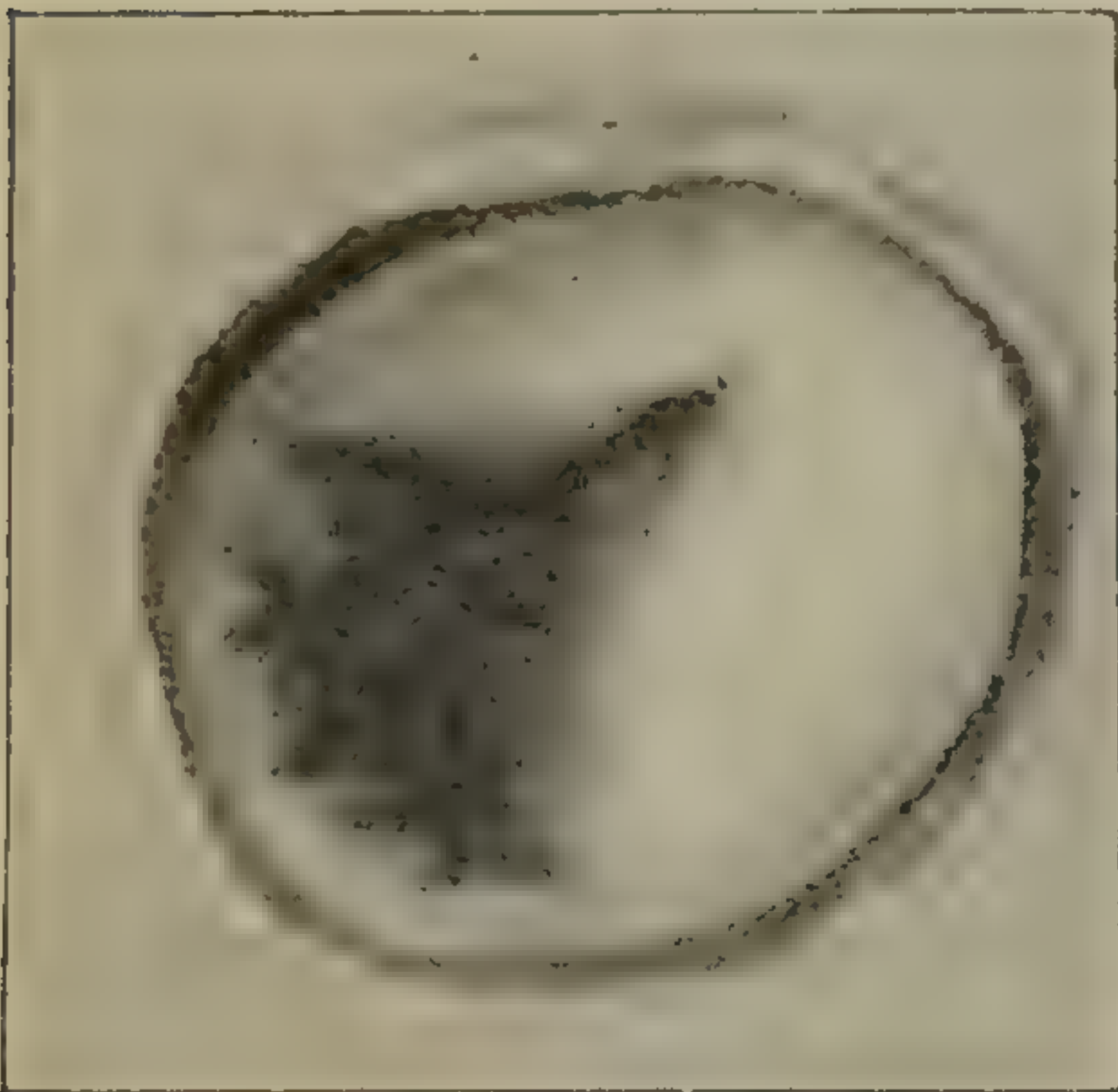


FIG. 111.—UNILATERAL LACERATION OF THE CERVIX.

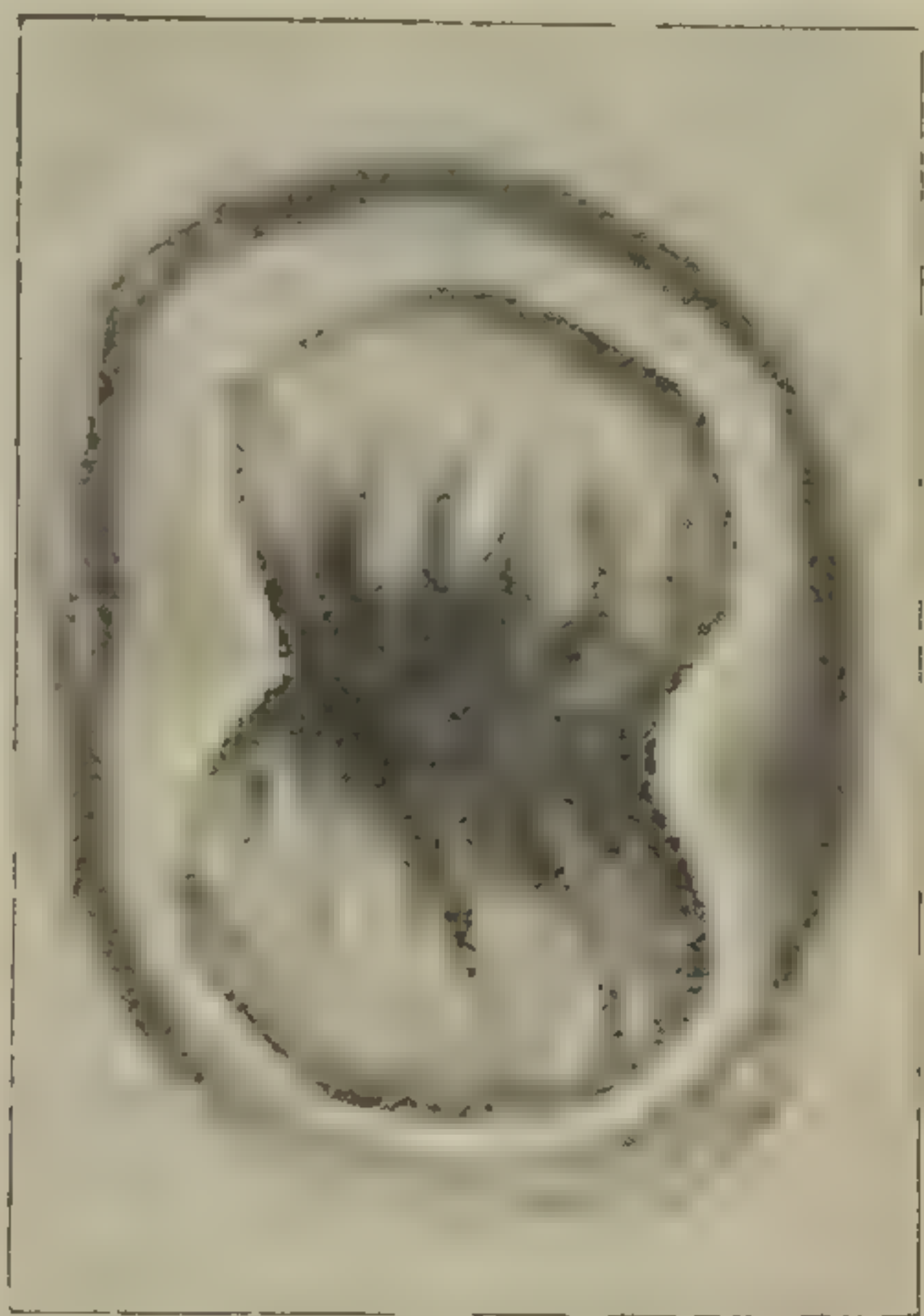


FIG. 112.—BILATERAL LACERATION OF THE CERVIX WITH EVERSION OF THE CERVICAL MUCOUS MEMBRANE.

2. Premature rupture of membranes.
3. Application of forceps before the cervix is dilatable.
4. Use of mechanical dilators.
5. Cicatricial induration.
6. Rigid os.

The cervix may be lacerated during a miscarriage as early as three months.

Pathology and Consequences.—When the laceration is slight no evil results may follow, indeed a large number of women who have borne children have had some small tear in the cervix and pass through life without any discomfort whatever.

1. In cases where the laceration is deep, inflammation is set up,

the uterus first fails to undergo normal changes and a state of *subinvolution* follows.

2. Hyperplasia of the uterus occurs and may involve later the ovaries, tubes, and cellular tissue of the pelvis.

3. From the constant hyperemia of the organ, acute or chronic inflammatory conditions may arise, producing metritis.

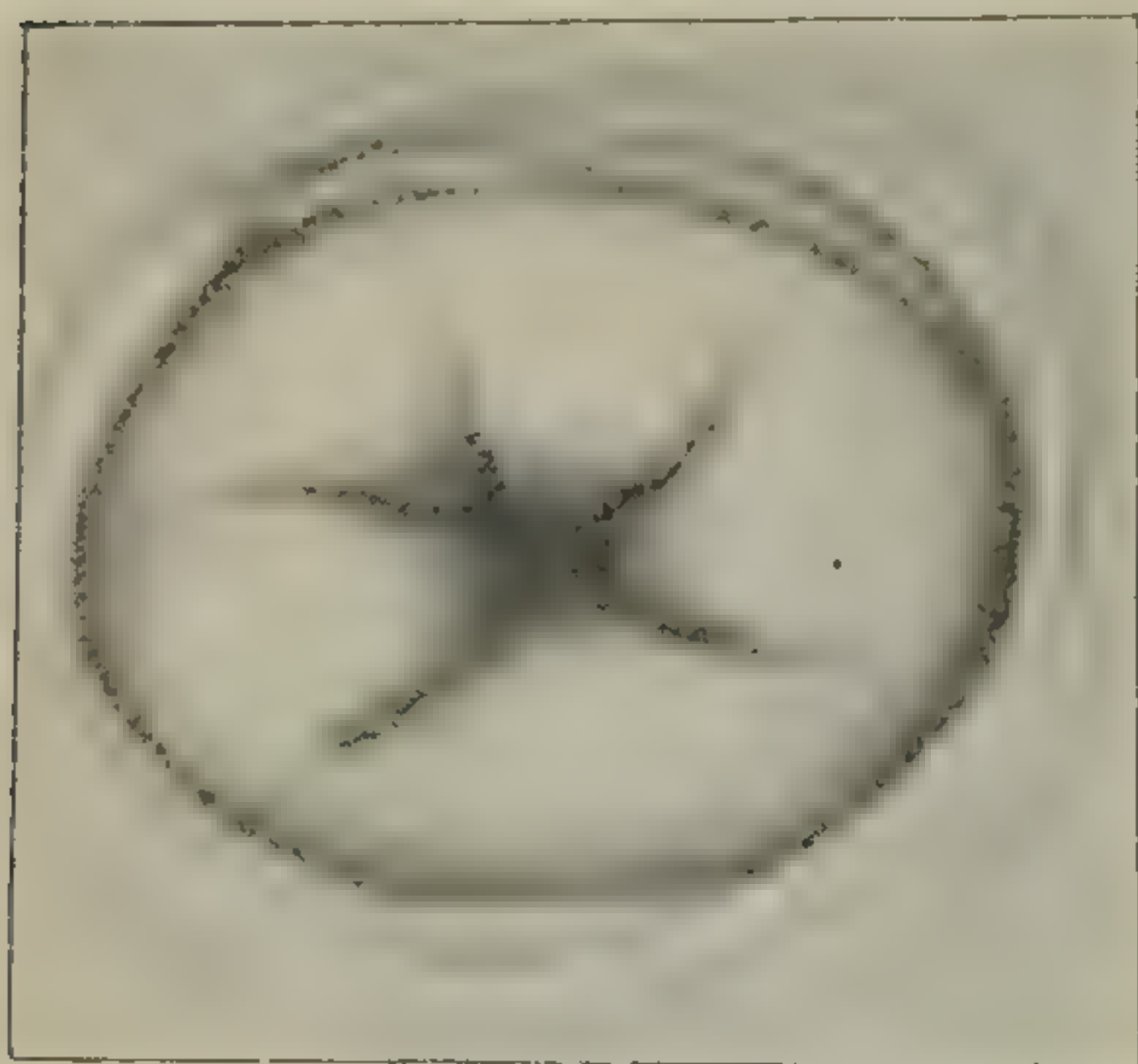


FIG. 113.—STELLATE LACERATION OF THE CERVIX.

4. Cicatricial tissue is formed over and around the laceration and may, by induration, prevent the normal increase in the size of the uterus at the menstrual periods, thus producing functional disorders. The ends of nerves may be compressed by the scar tissue, and cause various pains, or reflex nervous disturbances, neurasthenia, etc., may follow.

5. The heavy uterus may drag on the lax ligaments, and in

course of time various displacements may occur.

6. Eversion of the lips of the cervix may occur, forming the condition known as *ectropion*.

7. The open wound in the cervix offers a suitable entrance for septic germs and the danger of septicemia is increased.

8. Where lacerations through the anterior lip extend beyond the vaginal junction, a vesicovaginal fistula may result.

Symptoms.—Pain, dull and heavy in character, in the lumbar and sacral regions accompanied by a sensation of a dragging weight in the pelvis. Pain may also exist in the usual parts affected by uterine disease; *i. e.*, in the hips, thighs, the top and back of the head. Pain is present after coition (dyspareunia). Leukorrhea, menorrhagia, metrorrhagia, sterility or habitual miscarriages are common. A lacerated cervix may give rise also to anemia, hysteria and other reflex nervous disturbances. Undoubtedly a laceration may exist for years without producing any symptoms whatever.

Diagnosis.—By digital examination we find the cervix en-

larged, covered by catarrhal secretion and more or less hard from cicatricial tissue. The os is open and the mucous membrane frequently everted. The laceration can be found on one or both sides extending outward from the cervical canal. If the laceration is large the finger may pass to the internal os. In cases where a large amount of cicatricial tissue exists, a laceration may simulate epithelioma. In such cases, the character of the discharge, a microscopical examination and the history of the patient will aid in the diagnosis. It should not be forgotten that lacerations of the cervix are considered a frequent starting point for malignant uterine disease and especially epithelioma.

Treatment.—*Palliative.*—

1. Free vaginal douches of hot water.
2. Applications of iodine, or iodine combined with iodide of potassium (Churchill's tincture), to the vaginal vault and cervix two or three times a week, and followed by tampons made of strips of gauze, cotton, or wool saturated with boroglycerin.
3. Scarification of the cervix and puncturing of cysts.
4. Removal of hypertrophied tissue with a sharp curette, under strict antiseptic precautions.
5. Applications of tannic acid to the cervix, two or three times a week.

Radical Treatment.—In many cases this is the only method of any avail. Before operating it is necessary to see that no inflammatory disease of the ovaries and tubes is present. The operation here to be described, is known as trachelorrhaphy.

The patient is etherized and placed in the dorsal position on a hard table, with the buttocks on a perineal pad, the thighs well flexed on the abdomen, the legs held by assistants or kept in place by a leg holder; the bowels and bladder must be well emptied.

Before operating, the vagina must be thoroughly flushed out with a solution of bichloride of mercury 1 : 4000, or carbolic acid solution two per cent., or creolin, ℥j to Oj, or the same quantity of a mixture of creolin and green soap. This may be applied through a speculum by pouring the solution from a pitcher or using a large fountain syringe. Many gynecologists prefer having a constant irrigation of the field of operation.

The posterior vaginal wall is retracted with a Sims' or Simon's speculum so as to expose the cervix, the lips of which are then caught with tenaculum or vulsellum forceps, and drawn down, the

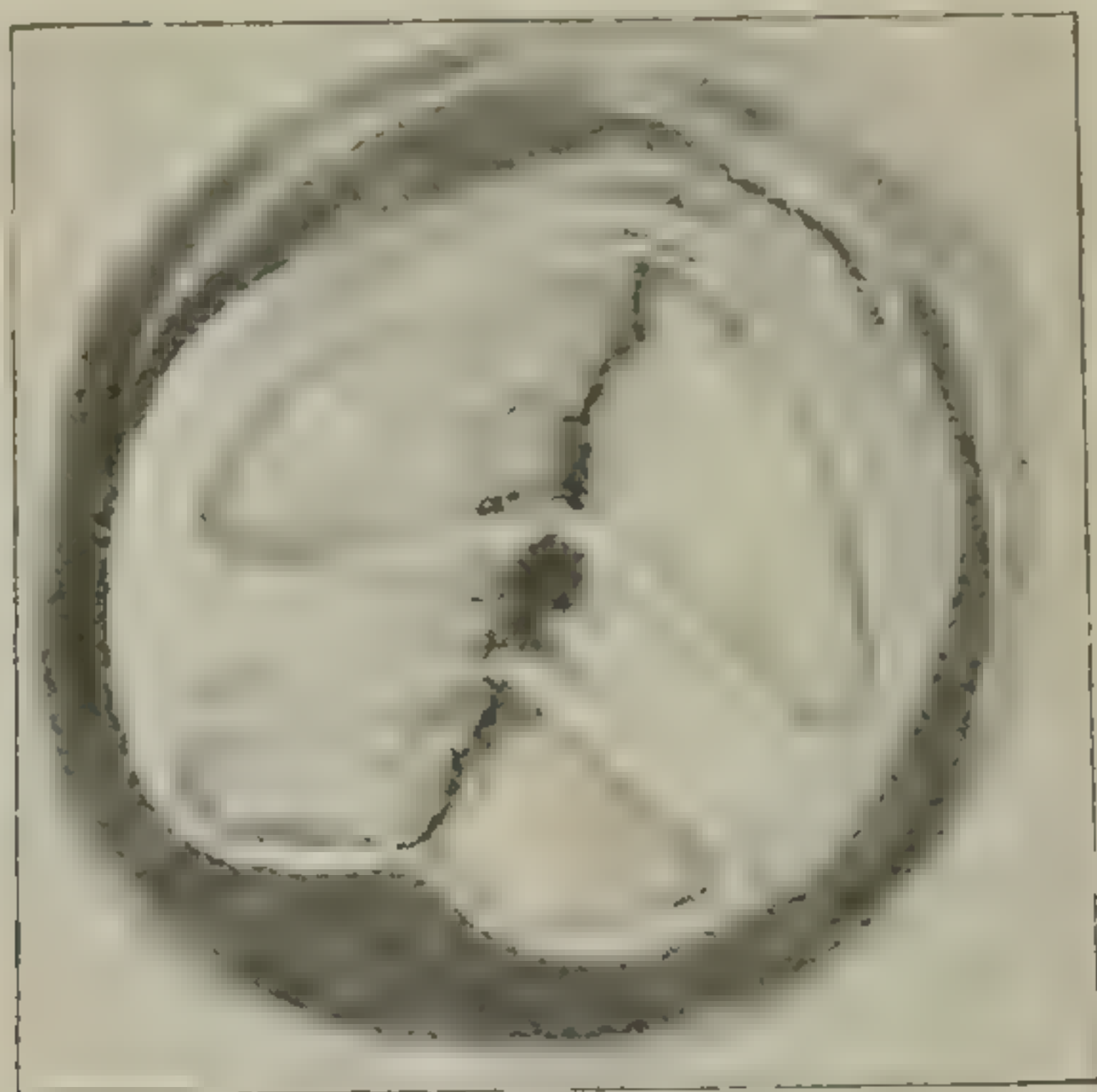


FIG. 114.—EMMET'S TRACHELORRHAPHY, SHOWING AREA OF DENUATION IN A BILATERAL LACERATION OF THE CERVIX.

lips being held well apart. The cervix is drawn slightly to one side and an incision made in the angles of the laceration, as deep



FIG. 115.—SAME SHOWING METHOD OF INSERTING STITCHES.

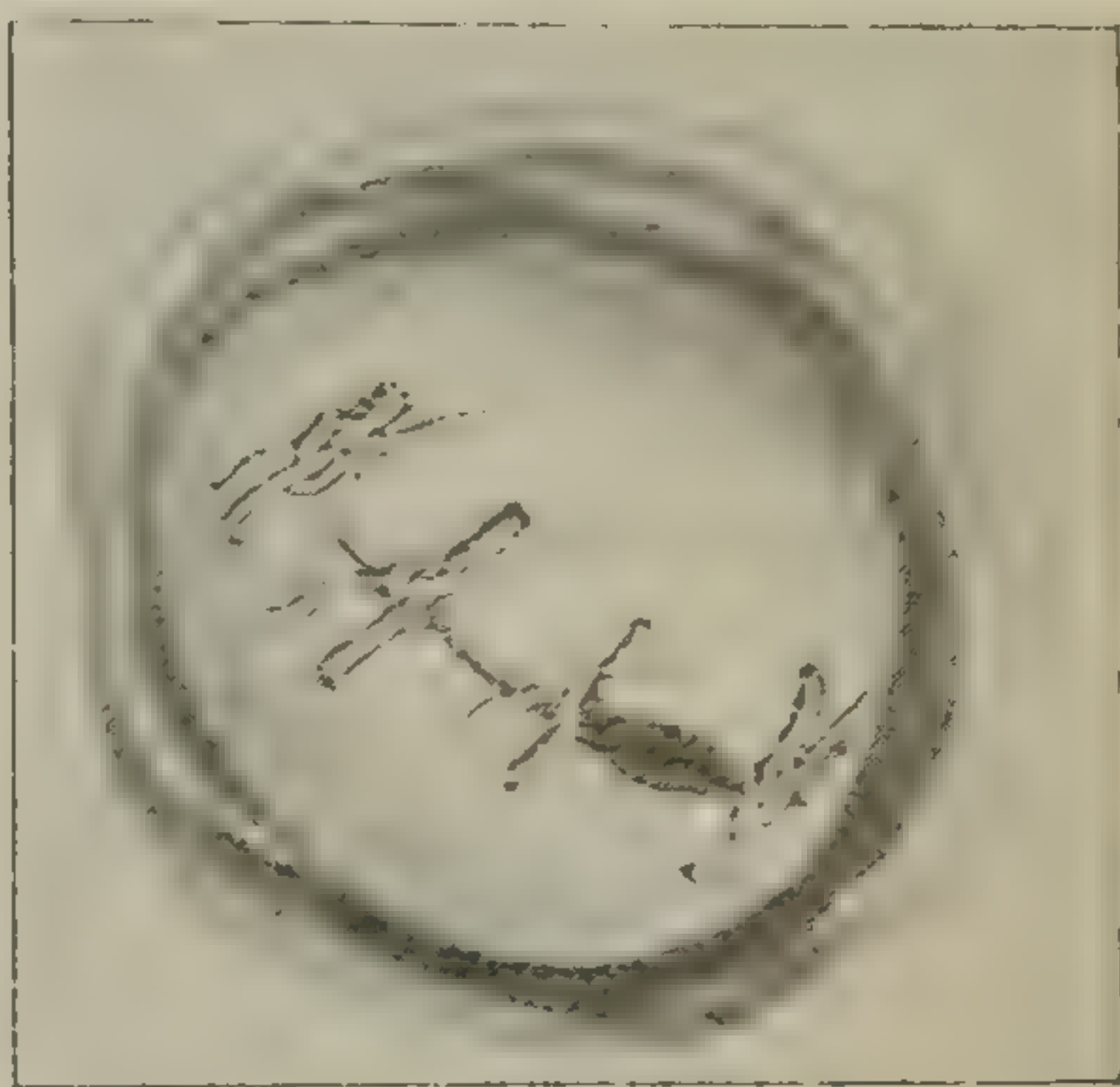


FIG. 116.—SUTURES TIED.

as the denudation on the lips is to be carried. The incision must extend into the healthy tissue. From this incision the surface of the posterior lip is denuded, as shown in Fig. 114, by means

of a knife or curved scissors ; a small strip of mucous membrane being left undenuded in the center to form the new cervical canal. This process is repeated on the anterior lip. The denudation must be so done as to remove all scar tissue and to secure a cone-shaped cervix and small external os after the two lips are brought together. An assistant holds the lips well apart and sutures of silk-worm gut, catgut, silk or silver wire, are then introduced by means of a stout curved needle, just above the angle of the incision on the vaginal side of the denudation but in the undenuded tissue, and brought out high up in the cervical canal ; it then crosses the canal (see Fig. 115), reenters on the opposite lip and is brought out on the vaginal edge of the undenuded portion of the opposite lip at a point corresponding to its entrance.

The other sutures, usually one or two in number, are passed in a similar manner but lower down on the cervical lips. After introducing the sutures the cervix should be again irrigated. The sutures may either be tied or passed through perforated shot, the latter being then mashed flat with a pair of forceps or shot compressor. When the laceration is bilateral the process is gone through with on both sides. The vagina is again washed out and lightly packed with iodoform gauze. The stitches should be left in from three to six weeks, although some operators remove them in from eight to ten days.

Occasionally the Sims' position is preferred in repairing lacerations of the cervix.

The time most usually selected for operations on the cervix is from one to two weeks after the menstrual period.

Schroeder's Operation.—The patient having been prepared as for the former operation, the lips of the cervix are seized with two pairs of vulsellum forceps and drawn apart. A portion of the inner side of each lip is then incised in the shape of an obtuse angle and all scar tissue removed (see *b.* Fig. 117). Each lip is then turned in as in *c.* Fig. 117. The sutures are entered as shown in the dotted line in *b.* Fig. 117. This operation is recommended in lacerations of the cervix where the condition is accompanied by uterine catarrh or subinvolution.

Simon's operation consists in dividing the cervix into two lips and taking a wedge-shaped piece out of each lip. The

sutures are passed directly across from one side of each lip to the other. The operation is done to aid in reducing the size of the uterus in subinvolution and for the removal of a cervix hypertrophied in its intravaginal portion. Amputation of the cervix can be accomplished also by the galvanocautery and by circular amputation.

The *after treatment of cervical operations* consists in giving one mild antiseptic vaginal douche immediately after the operation,



FIG. 117.—SCHROEDER'S OPERATION. LINE OF EXCISION IN EXCISION OF THE CERVICAL MUCOUS MEMBRANE, AND METHOD OF INSERTING FIRST STITCH.

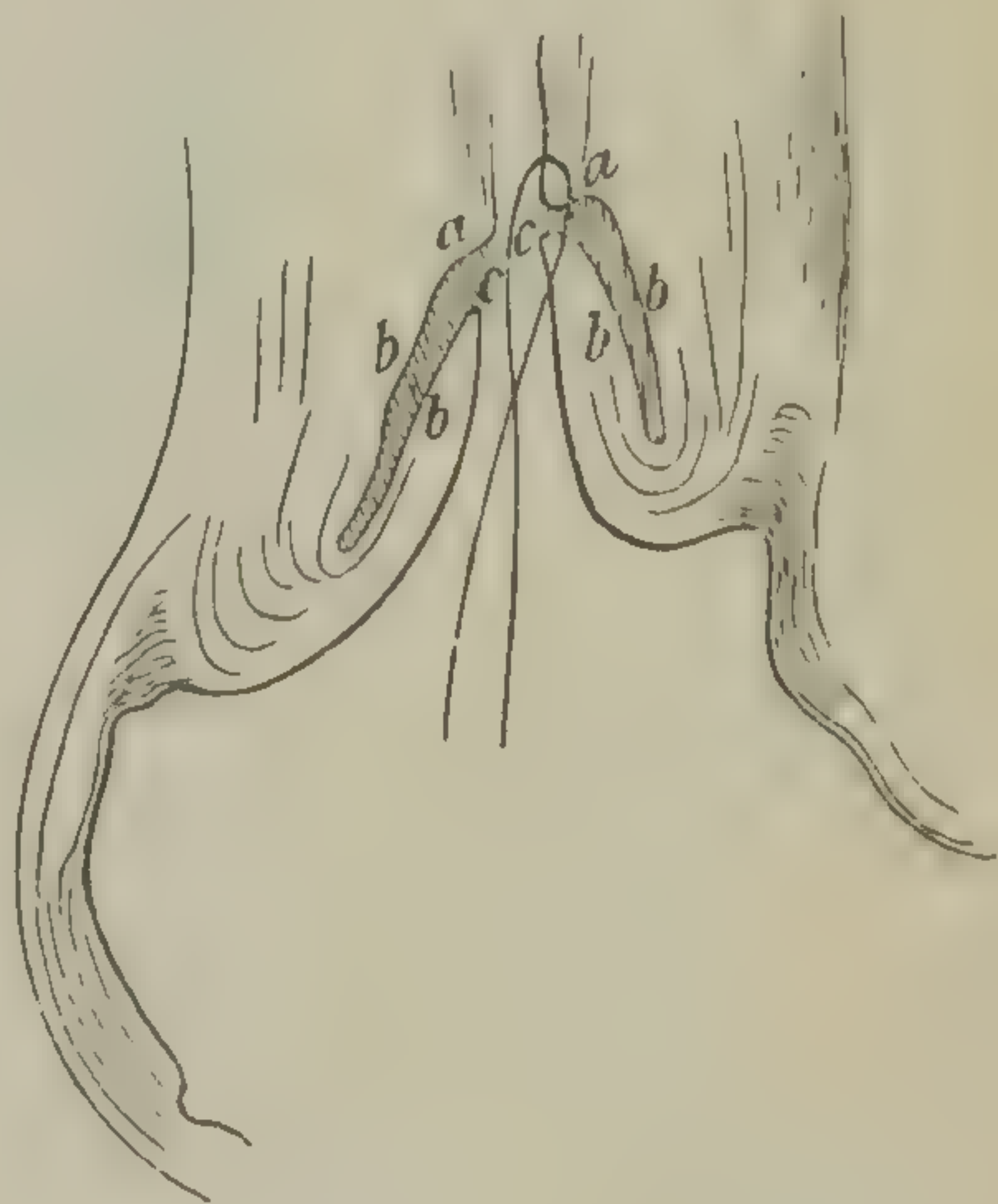


FIG. 118.—SCHROEDER'S OPERATION. METHOD OF DRAWING IN EXCISED ENDS OF CERVIX.

and in some cases where there is oozing, lightly packing the vagina with gauze. An antiseptic vulvar pad and T-bandage completes the dressing. Unless specially indicated, no other vaginal douches need be given. The bowels should be moved daily, and if possible the bladder should be emptied voluntarily.

ENDOMETRITIS.

Definition.—An inflammation of the lining membrane of the uterus.

Varieties.—Endometritis may be either acute or chronic.

Acute endometritis is divided into—

1. *Cervical*, in which the mucous membrane of the cervix only is involved.
2. *Corporeal*, in which the mucous membrane of the body only is inflamed.
3. *General*, in which the entire endometrium is inflamed. The latter is the most common form.

Causes.

1. Catching cold, either just before or during menstruation.
2. Sepsis from the hands of physicians or nurse being unclean at time of a vaginal examination, from instruments not properly cleansed, or neglected labors.
3. Gonorrhea.
4. From the continued fevers, nephritis, tuberculosis, or variola, etc.
5. Excessive venery.
6. May follow simple or specific vaginitis.
7. Bad lacerations of the cervix.

Pathology of Acute Endometritis.—This type of endometritis is seldom seen before puberty. Scanzoni considers it an acute catarrh of the uterine mucous membrane, accompanied by a congestive swelling of the muscular substance. Frequently it is possible to see with the naked eye, that the vessels are gorged with blood. This is greatest in the internal layers of the uterus. From this congestion results an infiltration and softening, these being greatest in the layers of the parenchyma nearest to the mucous membrane. The epithelium is destroyed and thrown off. A marked secretion, at first serous, later purulent or composed of pus mixed with blood, is generally found.

Symptoms.—Usually some febrile reaction marks the onset, and is accompanied by a sensation of pain and weight in the pelvis, pain in the loins, legs, and back. There may be diarrhea and vesical irritability. The discharge is a marked feature, it is at first profuse, thin, and watery (leukorrhea), but later becomes thick like the white of an egg. The latter is particularly the case, where the inflammation is principally cervical. Disorders of menstruation are apt to be present. In gonorrheal endometritis, the symptoms are much more intense, the discharge often assumes

a greenish hue. Gonococci may be found on microscopic examination.

Physical Signs.—The cervix, body or whole uterus will be found by bimanual examination to be enlarged according to the seat of inflammation. The intravaginal portion of the cervix feels swollen and the os frequently gaping and eroded. Issuing from it, and possibly partly filling the upper part of the vagina is a tenacious, sticky, white or yellowish-white discharge. This discharge may be acid or alkaline, and is usually quite irritating in its action. Examination should be made by the vaginal touch, bimanual palpation, and by exposing the cervix with a Sims' or other speculum. The sound should never be used. Great care should be taken as to aseptic cleanliness.

Diagnosis of Acute Endometritis.—As the appearance of the cervix may somewhat simulate pregnancy, the history of the patient must be taken into consideration. The absence of the usual subjective and objective signs of pregnancy and the presence of those of simple inflammation will serve to exclude gestation.

From Pelvic Inflammation.—Here the uterus is fixed and the periuterine tissue is hardened. Considerable tenderness will be found by bimanual examination *around* the uterus. In *acute endometritis*, the uterus is movable, the body is but slightly tender, and there is no extension of pain to the surrounding tissue.

The constitutional disturbance in pelvic inflammation is also much more marked.

Complications.—Acute parenchymatous metritis with extension of the inflammation through to the tubes and ovaries.

Parametritis, by extension of the inflammation through the uterine tissue to the cellular tissue surrounding it.

Perimetritis, by the inflammation extending to the peritoneum above the uterus.

Pelvic Peritonitis, Vaginitis, and Urethritis.—The discharge may also excite various irritations about the vulva.

Treatment.—Absolute rest is the first consideration. Hot fomentations or an ice-bag over the uterus. Saline laxatives in 3j doses repeated so as to drain the pelvic vessels thoroughly. Where pain is great, opium in small doses may be given. The

diet should be light, consisting of such articles as beef tea, chicken broth, or milk. Large injections of hot water containing borax in the strength of about ℥ij to the quart are highly recommended. These should always be given with the patient lying on her back, with hips slightly elevated. Some authorities recommend the application of leeches over the abdomen and the scarification of the cervix. Applications of silver nitrate in solid form, or other caustics, should be avoided. As soon as the acute symptoms have somewhat subsided, the cervix should be dilated, the cavity curetted with a dull curette and washed with a mild antiseptic, such as creolin ℥j to the quart, and packed with iodoform gauze. When the patient is anemic, such remedies as quinin, strychnin, arsenic, and nourishing foods are indicated.

CHRONIC ENDOMETRITIS.

Varieties.—Many classifications of this disease are given; the author has taken that given by Pozzi as being about the simplest.

Pozzi's Classification of Chronic Endometritis.—

1. Chronic interstitial.
2. Chronic glandular.
3. Polypoid.
4. Exfoliative.

The endometrium of the cervix or body or the entire uterus may be involved in chronic endometritis.

Principal Pathological Characteristics of the Four Varieties.—

(a) *Chronic Interstitial Form.*—The interglandular tissue is transformed into true cicatricial tissue, which gradually increases, compressing the glands, which become atrophied or are transformed into cysts.

Chronic Glandular Form.—Pozzi describes two forms of this variety. In the first there is hypertrophic proliferation of the glandular epithelium without a corresponding increase in the number of glands. In the second, the hyperplastic form, there is an increase in number of the glands themselves.

Polypoid Form.—This is described as a mixed form, both interstitial and glandular with considerable cystic degeneration. There

is great development of the mucous membrane which may assume a fungous appearance and is generally covered more or less with polypoid structures varying in size. These are easily felt with the examining finger. Considerable hemorrhage is apt to accompany this form.

(*d*) *Exfoliative*.—Endometritis dessicans. Decidua menstrualis. (See also *Membranous Dysmenorrhea*.) In this variety at the menstrual period the whole or a part of the endometrium is thrown off, sometimes as shreds; at other times an entire cast of the interior of the uterus. This expulsion is accompanied by severe pains like those of labor.

Causes.—

1. Continuance of acute puerperal or nonpuerperal endometritis or of simple or specific vaginitis.
2. Incomplete removal of placenta after miscarriage or labor.
3. Badly managed labors.
4. Traumatism from sounds, pessaries, caustics, etc.
5. Getting up too soon after confinement.
6. Subinvolution.
7. Uterine displacements, malformations, or cervical stenosis preventing the escape of menstrual blood, lacerations of the cervix.
8. Exposure to cold, at time of menstruation.
9. Depleted conditions of the blood or nervous system.
10. Frequent parturitions and abuse of sexual intercourse.
11. Tumors of the uterine cavity.

Symptoms.—A heavy dragging pain in the lumbar regions and in the loins, continuous, but increased by standing, sitting or walking, especially if the patient makes a misstep. There may be pain down the thighs and between the shoulders. Vague pains may also be felt in other parts of the body. Headache in the front or top of the head is not uncommon. Leukorrhea is a constant symptom, this may be thin and almost clear or thick like the white of an egg. When from the body of the uterus it is usually of the former variety and when from the cervix it resembles the latter. The discharge may also be yellowish or greenish when pus is present. Various menstrual disturbances may appear. Menorrhagia and metrorrhagia are especially apt to be

present in the chronic interstitial form. Amenorrhea may appear when there is great debility. Dysmenorrhea may also be present and is a prominent symptom in the exfoliative variety. Patients suffering with endometritis are apt to develop various nervous symptoms often more or less vague. Dyspepsia is frequently present. Neuralgia is a common sequela.

Physical Signs.—Bimanual examination shows the uterus enlarged, somewhat sensitive to the touch, but freely movable in cases uncomplicated by periuterine inflammation. The os and cervix may have somewhat the feel of velvet. Inspection with the patient in the dorsal position and with a Sims' or bivalve speculum introduced into the vagina will show the cervix enlarged, and of a dark red or violet color. When laceration of the cervix exists the os shows increased granulations and small cysts about it. In the chronic catarrhal form, the cervix is frequently greatly elongated (hypertrophic elongation), and may extend nearly to the vaginal orifice. Examination with a clean sound will generally show the cavity enlarged, and will demonstrate by their increased sensitiveness the inflamed areas of the mucous membrane. In the polypoid variety, the sound will show the presence of the small growths as smooth, more or less movable eminences above the surface of the mucosa. When the cervix is affected, polypi, either pedunculated or sessile, may be seen projecting from it. As the sound is withdrawn, a little blood or bloody mucus may come away with it. The reddened areas around the os seen through the speculum are known as *erosions*, and are formed by changes in the epithelium of the cervix; when these are deep, they are sometimes called *ulcerations*. Erosions are described as being—

1. Simple.
2. Follicular.
3. Papillary.
4. Cystic.

Complications of chronic metritis may be metritis or salpingitis. From extension downward, vaginitis. Peritonitis may occur when inflammation extends through the uterine body. Permanent displacement may occur.

Treatment of Chronic Endometritis.—

Prophylactic.—After labor or miscarriage, see that all fragments

of the placenta and blood clots are thoroughly removed, and that the uterus is clean. Where constitutional disease exists it must be treated, and the general system kept in as good a condition as possible. Instruments used in examination should be kept absolutely clean and aseptic.

The Treatment of Existing Endometritis.—Rest ; draining the pelvis as much as possible by saline purgatives. Copious injections of hot water, either plain or medicated, are very useful. These injections should always be given with the patient lying down. Vaginal tampons made of cotton or gauze, and saturated with glycerin and borax and applied to the cervix through a speculum will often afford great relief. Applications of iodine or iodized phenol to the endometrium, to the cervix, and upper part of the vagina are useful in mild cases. Hot sitz baths and the administration of the fluid extract of ergot and *hydrastis canadensis* in 15-drop doses each, three or four times a day, are useful adjuncts. When, after a fair trial of these means relief is not afforded, the cervix should be dilated with solid graduated or parallel dilators, and the diseased endometrium removed with a sharp curette. After this has been done, the uterus should be washed out with an antiseptic solution (this is unnecessary where a douche curette has been used) by means of a double current catheter. The interior of the uterus should then be swabbed out with iodine, a combination of iodine and potassium iodide or iodized phenol. Many gynecologists prefer simply packing the uterus with iodoform gauze after curettage. This packing is removed in from two to three days. A sterilized pad held in place by a T-bandage completes the dressing. Care must be taken that the vagina is thoroughly clean before curettage is attempted. Existing acute inflammation is a contraindication to the use of the curette. The operation should be done under anesthesia ; the patient should remain in bed for several days afterward.

Lacerations of the cervix should of course be repaired by one of the operations before described.

In chronic interstitial endometritis with hypertrophic elongation of the cervix, the cervix should be amputated. If there is eversion of the mucous membrane of the cervix (ectropion) with cystic formations the latter should be evacuated. Scarification of the cervix

s also recommended by some. Rest during the menstrual period and abstinence from sexual intercourse should be insisted on.

METRITIS.

Definition.—Metritis is an inflammation of the parenchyma of the uterus, as distinguished from that of its mucous linings or serous coverings (*Craigie*). Metritis may be acute or chronic.

ACUTE METRITIS.

Synonyms.—Acute inflammatory metritis, acute parenchymatous metritis.

Causes.—Mostly infectious in origin. May arise—

1. From postpuerperal endometritis, either through streptococcus infection or from gonorrhea. May arise from the use of unclean instruments or manual examinations.

2. From infection of placental fragments and clots.

3. Exposure to cold during menstruation.

4. Sexual excesses.

5. Acute peritonitis.

6. Lacerated cervix.

7. Acute fevers, nephritis, tuberculosis. Any cause producing inflammation of the endometrium may by extension of this into the parenchyma of the uterus cause metritis. Acute metritis rarely exists independently, but is nearly always associated with endometritis or peritonitis.

Pathology.—The uterus enlarges and becomes softened. The enlargement is especially noted in the anteroposterior diameter. According to Pozzi, the mucous membrane is soft and thickened; by microscopic examination, the glandular structures are not altered, but the interglandular tissue undergoes particular metamorphosis. The cells appear in much greater numbers than normally and they are so pressed against one another that there remains but little space for the intercellular substance. They present their normal size and differ from the cells of the decidua, by that, and by the small quantity of their protoplasm. He considers it an acute interstitial inflammation. Purulent infiltration of the muscular bundles may also occur (*Hart and Barbour*)

The peritoneal investment of the uterus may share in the inflammation, becoming covered with lymph. Rarely abscesses may occur in the uterine walls, these may break into the uterus, vagina, bladder, or rectum, or into the peritoneal cavity. These abscesses occasionally become encapsulated and undergo caseous degeneration.

Symptoms.—Acute uterine inflammation usually begins with a chill, more or less severe, followed by fever and rapid pulse. Pain is present and may be over the uterus or in the hypogastrium. According to Pozzi, the pain is chiefly in the lumbar and iliac regions, and more frequently in the left iliac than in the right. There may be present also nausea, and rectal and vesical irritation. By examination, the uterus is enlarged, soft, and very tender, but unless the surrounding tissue is involved, the organ is freely movable. Examination with a sound should not be made.

Menorrhagia and metrorrhagia generally occur, the menstrual function may however, be entirely suppressed.

Treatment.—If seen early put the patient to bed and keep her in a state of absolute quiet. An ice-bag, ice-poultice, or ice-water coil should be placed on the abdomen over the uterus. Later hot applications or turpentine stupes act rather better than cold.

If the condition is due to retained septic secundines, these should be removed by a *dull* curette and the uterine cavity thoroughly washed out with carbolic acid, 1 : 100; creolin, 3j to the quart; lysol, one to two per cent., or solutions of creosol, etc. Some authorities recommend bichlorid of mercury in a strength of 1 : 5000, when the latter is used, however, the injections should always be followed by a copious intrauterine douche of boiled water. Uterine suppositories of iodoform, 30 to 60 grains, occasionally answer admirably. The douche should always be given through a return flow catheter or douche curette. The bowels should be kept open by salines or enemata. Opium in small doses may be given. May be administered by mouth or rectal suppositories. Leeches over the abdomen are recommended by some, to the cervix by others. After the acute stage has passed, copious hot water douches to the vagina and glycerin tampons, the former applied every day, the latter three or four times a week, do good.

CHRONIC METRITIS.

Synonyms.—Chronic parenchymatous metritis, areolar hyperplasia (*Thomas*), chronic parenchymatous inflammation of the womb (*Scanzoni*).

Varieties.—Hemorrhagic, catarrhal, and chronic painful (*Pozzi*).

Causes.—Any cause producing the acute forms either of endometritis, or metritis may by its continuance, produce chronic metritis.

Pathology.—According to Pozzi, the principal lesion is hypertrophy of the connective tissue of the uterus, which generally causes an increase in the size of the organ, although it may occasionally decrease in volume.

Symptoms.—The symptoms generally date from childbirth, miscarriage, or from an attack of pelvic peritonitis. There is a continuous heavy dragging pain in the groins, above the pubic bone, and in the lumbar and sacral region. These pains may be reflected down the thighs, both on the anterior and posterior surface and in various parts of the body. Headache is a prominent symptom. Leukorrhea, menorrhagia, and dysmenorrhea are usually present. The other symptoms are irritability of the bladder and rectum, vague neuroses, abortion, and sterility.

Physical Signs.—The uterus is enlarged and somewhat tender in the early stages, but as the disease becomes chronic, the organ hardens and may possibly become somewhat irregular in shape. The cervix may be distinctly lengthened. The cervical canal is generally enlarged and the os patulous. Very frequently the uterus is found retroverted or retroflexed, the latter particularly if the metritis has existed some time. Very frequently the uterus will be more or less fixed by adhesions.

Differential Diagnosis.—*Malignant disease* may be distinguished by the later period of life at which it occurs, the rapid and progressive degeneration in health, the peculiar color of the skin, the intense characteristic pain and the foul smelling discharge. Vaginal examination in metritis will not disclose the softened tissue so easily breaking down under the finger and hemorrhages often following examination. Microscopical examination will make the diagnosis certain.

Fibroids can be distinguished by their irregular shape. The uterus lacks here the regular soft enlargement of metritis. The sound can often detect a fibroid when in the cavity.

Early Pregnancy.—The jug-like shape of the body can be felt through the vaginal vaults in pregnancy. The uterus enlarges constantly from week to week. There are the changes in the breasts, mucous membrane of the vagina and cessation of menstruation. The cervix is softened in pregnancy. The general condition of the patient is better than in metritis. There is no tenderness over the uterus.

Treatment.—

1. *Prophylactic*.—The careful and aseptic practice of obstetrics will do much toward preventing uterine inflammation. As much scientific care should be given to a woman after confinement as is given a patient recovering from a capital surgical operation.

2. *Curative*.—Endeavor to increase the patient's general health by tonics, such as arsenic, quinin, strychnin, and iron. A good formula is the following:—

℞. Sulphate of strychnin,
 Arsenious acid, āā . . . grs. $\frac{1}{30}$
 Tartrate of iron and potassium, grs. ij
 Sulphate of quinin,
 Pepsin, āā . . . grs. j.
 Made in a capsule or pill and taken after each meal.

In nervous subjects, a pill composed of one grain each of valerianate of iron, quinin, and zinc gives excellent results. The patient should lie down an hour or two each day, especially during the menstrual period; many of these cases do well to remain in bed during the whole of this time. Massage and a full diet systematically given, do good. The pelvis should be well drained through the bowels by salines and mild cathartics. Where subinvolution or hypertrophic elongation of the cervix exist, trachelorrhaphy by Emmet's or Schroeder's method, or Markwald's amputation will give good results. In other cases, prolonged hot water vaginal injections, tampons of glycerin or boroglycerin, combined with applications of iodine to the cervix and vaginal vaults accomplish much.

Scarification of the cervix is recommended by some. Apostoli recommends galvanism in these cases. Where endometritis is a prominent factor, curette, and apply iodine, or pack the cavity with iodoform gauze. Menorrhagia, metrorrhagia, or dysmenorrhea should be treated as in other cases.

TUMORS OF THE UTERUS.

FIBROID TUMORS.—(FIBROMATA.)

Pathology.—Fibroid tumors are localized hypertrophies of the parenchymatous tissue of the uterus. Microscopically both the fibrous and muscular elements are in excess, the former usually predominating. They may be attached to any part of the uterus,



FIG. 119.—SUBSEROUS FIBROID. .
(One-half size.)



FIG. 120.—INTERSTITIAL FIBROIDS.
(One-half size.)

and may be single or multiple. Fibroids are subject to various changes, such as :—

1. Spontaneous atrophy.
2. Myxomatous,
3. Cystic,
4. Fatty, and
5. Calcareous degenerations.
6. They may soften and slough or become gangrenous.
7. According to Virchow the uterine attachment of certain

fibroids may undergo a species of varicose degeneration which causes the tumor to resemble erectile tissue. These are known as *telangiectatic tumors*.

8. Rupture of the small blood-vessels within the mass may occur, causing apoplexy.

9. A distention of the intercellular lymph spaces, known as *lymphangiectasis*, is also described.

10. Malignant degeneration may take place.

Varieties.—

Fibroid tumors of the uterus are called:—

1. *Interstitial*; where the tumor begins and continues its growth in the *muscular wall*, enlarging equally toward the mucous and peritoneal surfaces. Fibroid tumors generally begin in this way.

2. *Subserous* or *subperitoneal*; if the growth is toward the peritoneal cavity, under the peritoneum.

3. *Submucous*; if the growth is toward the cavity of the uterus and under its mucous coat. When the tumor grows from a broad base it is known as *sessile fibroid*, when attached by a slender stem it is called *pedunculated*. This latter is also known as *fibrous polypus*.

Consequences.—

1. All forms of uterine displacements, including inversion.

2. Rarely the pedicle of a subperitoneal fibroid may break, allowing the tumor to roll freely in the abdominal cavity.

3. They may be detached from the uterus and attached to some other abdominal viscus (*Thomas and Mundé*).

4. Fatal results may occur from (*a*) sepsis, (*b*) hemorrhage, (*c*) pressure, (*d*) embolism, (*e*) ulceration, (*f*) gangrene or (*g*) inversion of the uterus.

Causes.—The cause is often very obscure. They occur most often in women from thirty to forty-five years; nulliparity and long-standing menstrual disorders seem to predispose. Race seems to be a factor in the causation, the negro being more often



FIG. 121.—SUBSEROUS AND SUBMUCOUS FIBROID.
(One-half size.)

affected than the white race. Fibroids are said to occur in about forty per cent. of women over thirty-five years of age.

Symptoms and Complications.—It is quite possible for a slow growing fibroid to cause no distinguishing symptoms. The common symptoms are :—

1. Menorrhagia and metrorrhagia.
2. Leukorrhea and
3. Pain, especially at the menstrual periods, when the tumor shares in the general uterine congestion.
4. Endometritis generally accompanies.
5. The tumor may press on the sacral nerves, causing pain, or on the rectum, causing tenesmus, constipation or other symptoms due to retention of feces. The functions of the bladder may be interfered with. Pain is generally most marked in the subserous variety, while the hemorrhage is greater in interstitial and submucous fibroids. Other complications, such as ovarian enlargement, peritonitis, ascites, fatty liver and various neuroses, nephritis and cardiac hypertrophy are occasionally met with. Fibroids increase in size during menstruation, probably share in the retrograde metamorphosis of the uterus after delivery, and often either atrophy or undergo various degenerations after the menopause.

Diagnosis.—In cases of *submucous* fibrous polyp, a mass will be found protruding from the cervix. (See differential diagnosis between it and inversion of the uterus page 138.)

(a) *Subserous fibroids* can be diagnosticated—

1. By their irregular outline, demonstrated by bimanual examination.
2. By the pain, which is greatest in this variety.
3. The hemorrhage is less in this than in the *submucous* variety.
4. The sound enters the uterine cavity, which is empty and frequently elongated.
5. Pressure symptoms may aid in the diagnosis. This variety is apt to be multiple. They are to be differentiated from uterine displacements (see chapter on Displacements).

(b) *Interstitial and submucous fibroids* can be diagnosticated—

1. By the accompanying menorrhagia and metrorrhagia.
2. The more even enlargement of the uterine body.
3. The sound will usually demonstrate the position of the growth,

with the depression in the uterine mucous membrane opposite the point of attachment.

4. The uterine canal is tortuous. Frequently the cervical canal must be dilated and the cavity examined by the finger.

5. In the interstitial variety microscopical examination of shreds removed by the curette may aid in the diagnosis.

(c) *Fibrocysts*.—The cystic degeneration of a fibroid occupies considerable time. Percussion over the tumor may give the vibration of fluid, or coils of intestine in front of them may give a tympanitic note. The patient's health is not much affected. Fibrocysts as a rule do not cause profuse menstruation.

Differential Diagnosis.—Fibroid tumors of the uterus are to be differentiated from—

1. Parauterine cellulitic deposits.
2. Pelvic hematocele.
3. Ovarian tumors.
4. Pregnancy.

1. *Parauterine cellulitic deposits* show a history of a febrile condition, a sudden onset and the fixation and sensitiveness of the uterus.

2. *Hematocele* shows itself in a sudden appearance, the tumor being immovable and sensitive. The tumor is at first semifluid, later it may be tympanitic.

3. *Ovarian Tumors*.—Vaginal touch and the use of the sound will show that the tumor is not attached to the uterus. Percussion of the abdomen will give fluctuation. There is generally more deterioration of health. Solid ovarian tumors adherent to the uterus are almost impossible to differentiate.

4. *Pregnancy*.—There is amenorrhea. The tumor is symmetrical, softer, and of more regular growth. In doubtful cases, the development of fetal heart sounds and movements will settle the diagnosis.

5. *Tubal disease* can be excluded by the shape of the tumor, the great tenderness and lessened mobility of the uterus.

6. The area of displacement of a *floating kidney* will appear above the pelvic brim while that of a fibroid below the inlet. The differentiation between fibroids and uterine displacements has been given elsewhere.

Treatment.—The treatment may be divided into: Nonoperative and operative. The former may be subdivided into

(a) Palliative.

(b) Treatment by ergot.

(c) Electricity.

(a) *Palliative.*—Symptoms due to pressure of the uterus on surrounding parts and to displacements should be treated by restoring the uterus to its normal position and retaining it by a suitable pessary, tampons or abdominal pad. For the hemorrhage, require the patient to rest at the menstrual periods, giving ergot, either alone or combined with hydrastis canadensis; cannabis indica or viburnum prunifolium in doses sufficient to check the hemorrhage to the normal amount of menstruation. Tampons of cotton soaked in a solution of alum, gallic or tannic acid may be useful. For anemia give tonics and a good diet, keep the liver, skin and kidneys active and avoid constipation.

(b) *Splitting the cervix*, followed by curettement of the uterine cavity and applying a solution of iron, is recommended by some.

(c) *Ergot treatment* may be practiced in all varieties except fibrocysts. In subserous fibroids it will cause the tumor to shrink; in the submucous and subserous varieties it may aid also in expulsion. The American Text-book of Gynecology recommends a solution of Squibb's aqueous extract of ergot 1 : 10, with one grain of salicylic acid to each ʒss of the solution. Careful sterilization of both solution and syringe is necessary. During a prolonged course of this treatment, strychnin or nux vomica should be given to counteract the depressing effects of the ergot on the heart. The dose of ergot at the beginning should be about one grain a day and increased weekly until pain is felt in the uterus. Hydrastis in doses of 20 minims is also recommended.

(d) *Electrical.*—The methods of Apostoli are generally employed. The student is referred to special works on electrogynecology.

OPERATIVE METHODS.

Vaginal Enucleation.—This operation is indicated in submucous or interstitial fibroids, when the latter are covered by but a small amount of muscular tissue. The tumor must not be too large to pass through the pelvis, *i.e.*, not larger than the fetal head.

The patient is prepared as for hysterectomy. The operation is generally done with the patient in the dorsal position. The cervix must have been dilated by gauze tents or solid dilators previous to the operation, the dilatation being completed by incision or splitting the cervix if the canal is not sufficiently large. In the latter case the vaginal arteries may be tied. The capsule of the tumor is seized with a pair of bullet forceps and incised with a scalpel. The tumor is then loosened from the capsule with the finger or blunt-pointed scissors, after which it is grasped with the forceps and steady traction made on it, while with the scissors it is separated from its attachment to the uterus and delivered per

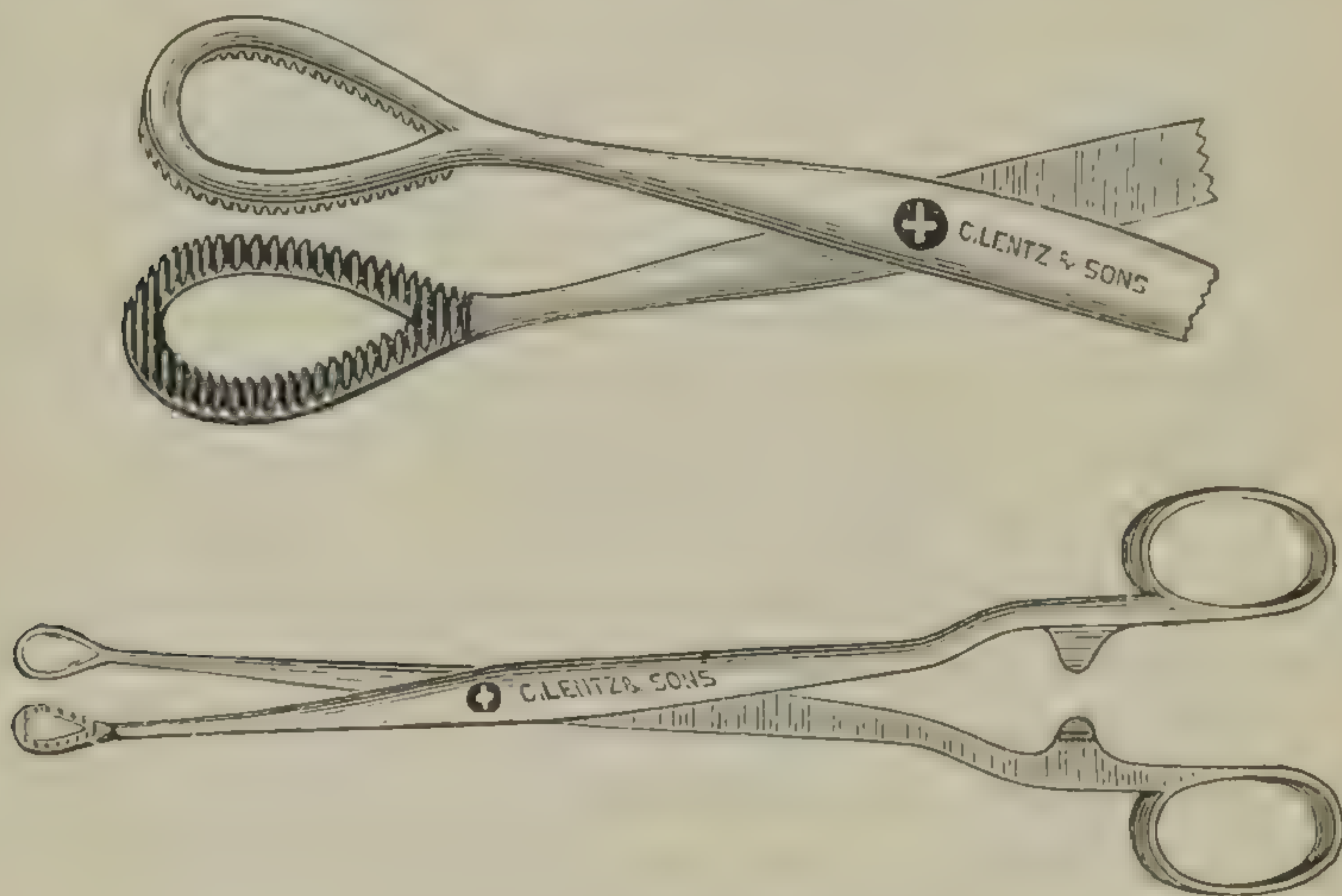


FIG. 122.—AVULSION FORCEPS.

vaginam. All loose pieces of capsule are then cut away. A digital examination of the uterus should be made to ascertain if any damage has been done, after which it is washed out and packed with iodoform gauze to prevent hemorrhage. The after treatment consists of rest, aseptic irrigation, and if necessary gauze packing. Ergotin should be given by the mouth or by hypodermic injection.

Morcellement or Avulsion.—The patient is prepared as for the previous operation. The cervix is dilated and the capsule or mucous membrane covering the tumor incised. A pair of avulsion forceps are then passed in and a portion of the tumor seized

and twisted off by a rotatory motion of the instrument. This is repeated until the whole tumor is removed. The instrument should be guided by a finger of the other hand in the uterus. After removing the whole tumor, the uterus is washed out and packed with gauze.

Myomectomy (Martins).—This operation is performed for the removal of subserous or interstitial fibromyomata pointing toward the abdominal cavity. The abdominal wall is incised as in hysterectomy, and the uterus brought up into the wound. A V-shaped incision is then made at the base of the pedicle of the tumor and the growth removed. Silk-worm gut or heavy silk sutures are used to control the bleeding. If the pedicle of the tumor is large, an elastic ligature may be made to constrict the pedicle near the uterus and the growth cut away above it. The stump may be treated according to the intra- or extraperitoneal method, in the same manner as in hysterectomy.

Supravaginal Hysterectomy, Abdominal Hysterectomy.

Indications.—When the life or health of the patient is threatened either by the rapid growth or large size of the tumor causing obstruction or interference with the functions of surrounding organs.

Preparatory Treatment.—The patient should be under observation either at her home or in a hospital from one to two weeks before the operation. She should receive good, nourishing food and tonics. The bowels must be opened every day and the skin and kidneys kept active by baths, massage, and diuretics. The methods for the preparation of the patient, surgeon, assistant, and room have been given elsewhere.

At the time for operation she should be dressed as for bed, the legs covered with a pair of warm stockings. It is better that she be etherized in a room adjoining that in which the operation is to be done, so that as far as possible she will not be permitted to see the necessary preparations. The operator and assistants should dispose themselves as in the cut given below.

Technic of Abdominal Hysterectomy.—The patient being anesthetized, she is placed at full length on her back or in the Trendelenburg position, the bowels and bladder having been emptied previously.

The incision is made in the linea alba as rapidly as possible. The small hemorrhage encountered will generally cease spontaneously as soon as the cut surfaces of the vessels come in contact with the air. A warm aseptic towel is then placed around the wound, which is enlarged by scissors, if necessary, and the uterus and tumor turned out. Great care must be taken in separating adhesions of the uterus to surrounding parts; it is often necessary to ligate the vessels of these adhesions before cutting them. To avoid wounding the bladder, a sound should be placed in it to mark its position. A double row of strong ligatures is placed in

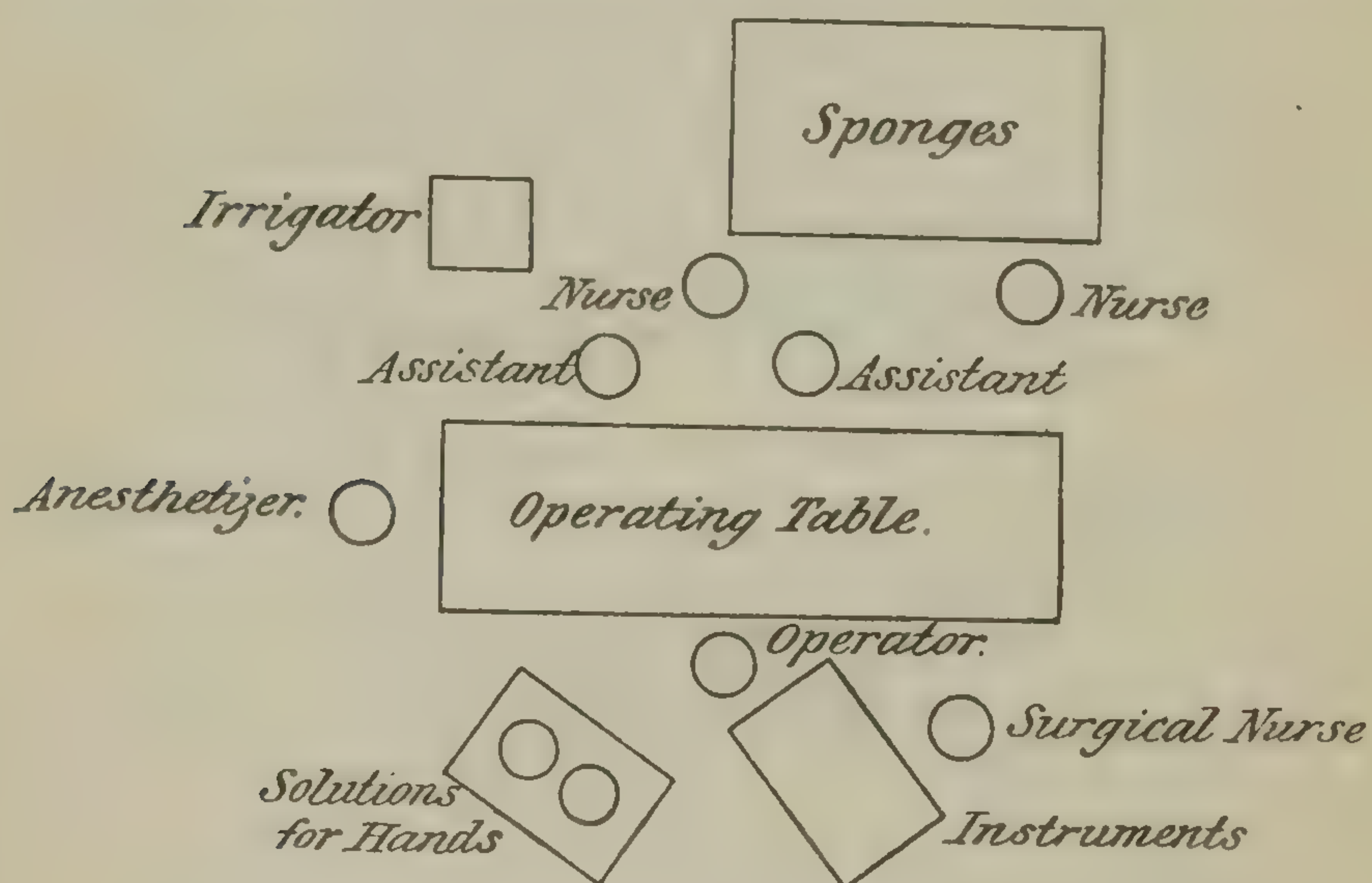


FIG. 123.—ARRANGEMENT OF OPERATING ROOM. (Byford.)

each broad ligament and the ligament cut between them. The tube and round ligament are then ligated separately. A stout rubber ligature or an *écraseur* is now placed around the upper part of the cervix and compression made. If any doubt exists as to the ability of the ligature to control the hemorrhage when the uterus is amputated the uterine arteries should be searched for and tied, care being taken to avoid tying the ureters at the same time.

The rubber ligature must be kept from slipping after it is tied, by grasping it with forceps or throwing over the knot a stout piece

of braided silk. When the uterus is freed from its attachments, it, with the tumor, are excised a finger's breadth above the ligature, which must be continually tightened as the operation proceeds. The tubes and ovaries are generally removed at the same time.

The technic of the operation will now differ according to the method by which the operator intends to treat the cervical stump:

1. The extraperitoneal or (*Hegar's*) extra-abdominal method.
2. The intraperitoneal or (*Schroeder's*) intra-abdominal method.

Extraperitoneal Method.—Before excising the uterus, two transfixion pins are passed at right angles to each other, completely

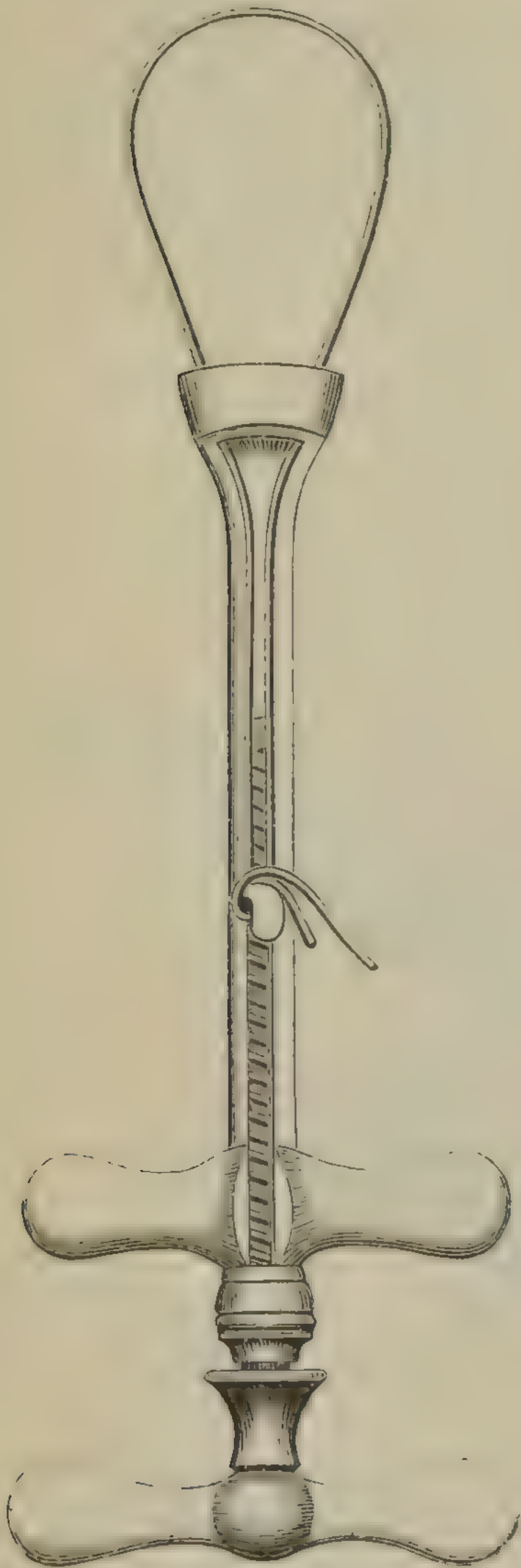


FIG. 124.—SERRE-NŒUD.

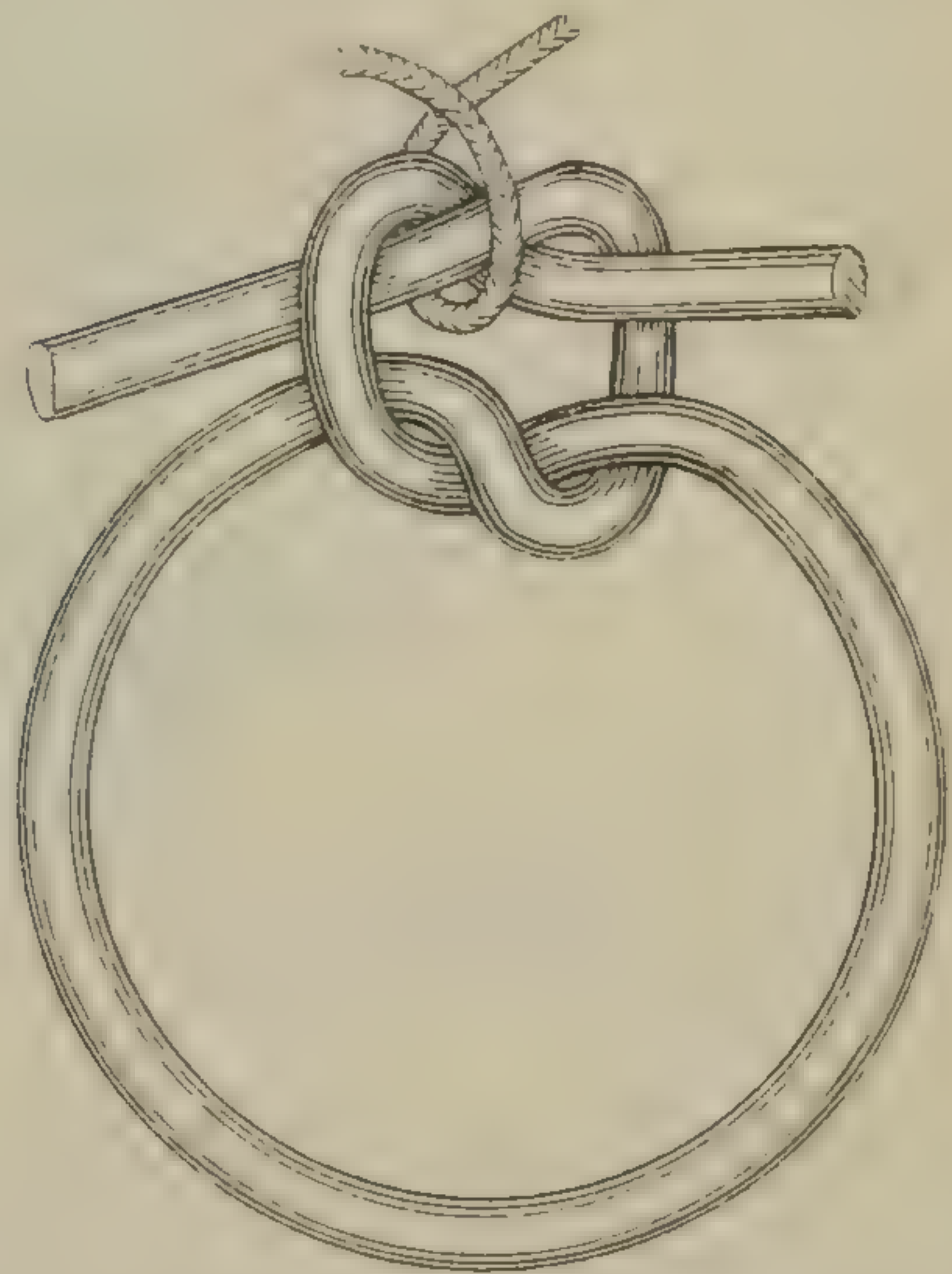


FIG. 125.—APPLICATION OF SILK LIGATURE TO PREVENT SLIPPING OF KNOT.

through it, just above the ligature or *écraseur* wire. The uterus is cut off about an inch above the pins. The stump should

be trimmed down until it is about one or two inches in diameter.

The two sides of the stump are brought together and stitched. The peritoneum is closed by stitching it to the serous surface of the pedicle below the wire by a single suture of catgut or silk, that of the pedicle being closed by drawing it over the stump by a continuous whipped silk suture. The abdominal cavity is

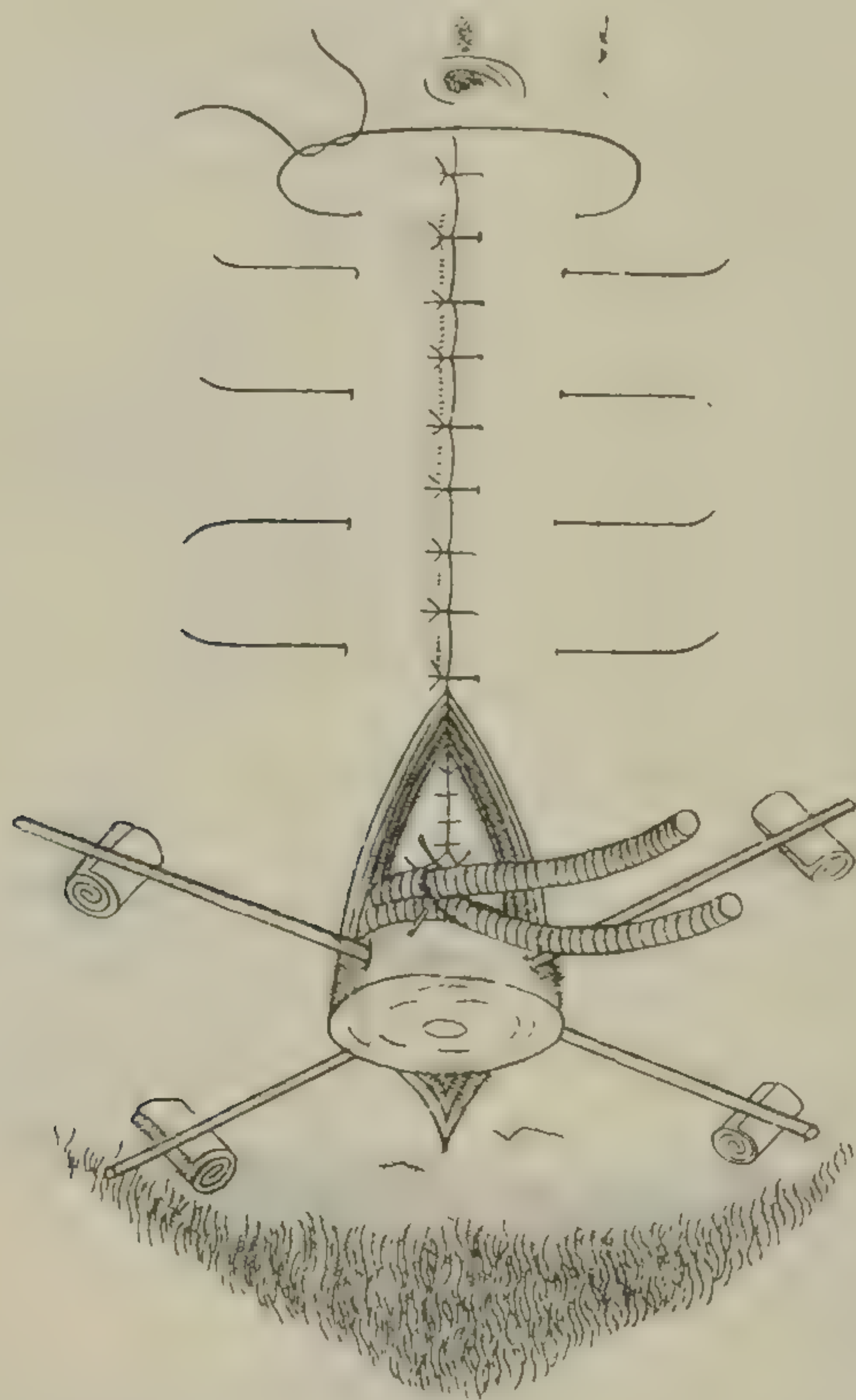


FIG. 126.—SUTURE OF THE ABDOMINAL WALL ABOUT THE PEDICLE.

thoroughly cleansed and dried, and all sponges taken out and counted. The stump is drawn into the lower end of the abdominal wound, which is closed by interrupted sutures of silk-worm gut, these being passed through all the tissues but the serosa. Small rolls of gauze are usually placed between the transfixion pins and the skin of the abdomen.

The stump is then dusted with iodoform and covered with iodo-

form gauze. The dressing consists of a thick gauze pad held in place by a three-tailed abdominal binder. During the whole process, the pressure with the elastic ligature or *écraseur* must be kept up. Mummification of the stump is complete in from two to three weeks. The first dressing is made about the eighth day, when the stitches are removed. When the stump is well cicatrized it is allowed to drop into the abdominal cavity. To avoid

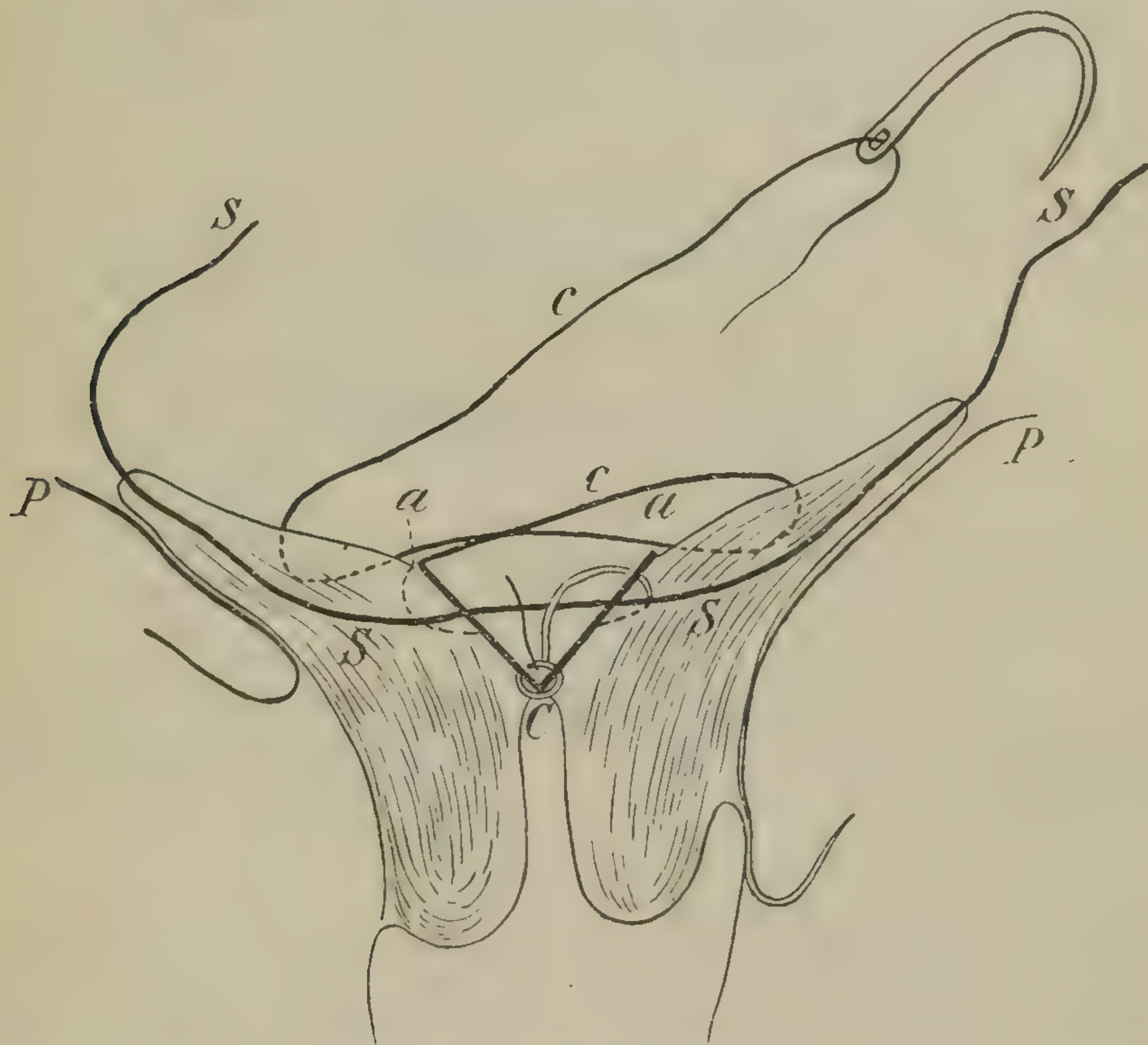


FIG. 127.—SUTURE OF PEDICLE IN THE INTRAPERITONEAL METHOD. (*Schroeder*.)
S. Deep suture of silk. *c.* Continued suture of catgut in superposed rows. *P.* Peritoneal covering.

the danger of ventral hernia, patients should remain in bed from six weeks to two months after the operation and should wear afterward an abdominal pad.

Intraperitoneal Method.—The same precautions to prevent hemorrhage are used as in the former operation. The peritoneum is incised and stripped back from the tumor in two flaps. After the broad ligaments are tied off, the rubber ligature is adjusted

below the tumor, which is cut off by a V- or wedge-shaped incision.

The cervical canal is then treated with the Paquelin cautery to avoid infection. The stump has now two flaps which are brought together with a continuous suture of silk. The flaps of the peritoneum are then brought together over the cervical stump, either by whipping the edges together with the same continuous suture used in uniting the cervical flaps, or, as some surgeons advise, using several rows of sutures. After carefully disinfecting and drying, the stump is returned to the abdominal cavity, which is closed without drainage.

Total Abdominal Hysterectomy.—The patient is to be prepared as for celiotomy and in addition the vagina should be



FIG. 128.—DESCHAMP'S NEEDLES.

thoroughly cleansed (see chapter on Preparation of Patient for Operation). The instruments used are the same as for ovariectomy with the addition of Deschamp's needles for ligating en masse. The patient is placed in the Trendelenburg position. The incision is made in the linea alba, the fingers inserted and the size and relations of the tumor noted. A broad pad of several thicknesses of gauze or a carefully asepticized elephant ear sponge is inserted through the wound to keep the intestines away from the field of operation and to absorb secretions. The tumor is then drawn up and any adhesions carefully separated. The ovarian artery is then ligated by a double ligature of heavy braided silk passed through the broad ligament near the uterus and below the tube. These ligatures are not crossed (see Fig. 129); the distal portion is

first tied a little exterior to the ovary and cut short ; the proximal portion passing over the tube between the tumor and ovary, is then tied and the ends cut as in the first case (see Fig. 129). Thus the tube and ovary on one side are tied off. It will be seen by this means the tube and ovary remain attached to the tumor when the broad ligament between the ligatures is cut. The tumor is then lifted up and, if necessary, two or more double ligatures are passed through the broad ligament, one set on each side below the upper set to a point on the cervix corresponding with the internal os, the object being to include the excess of the broad ligament

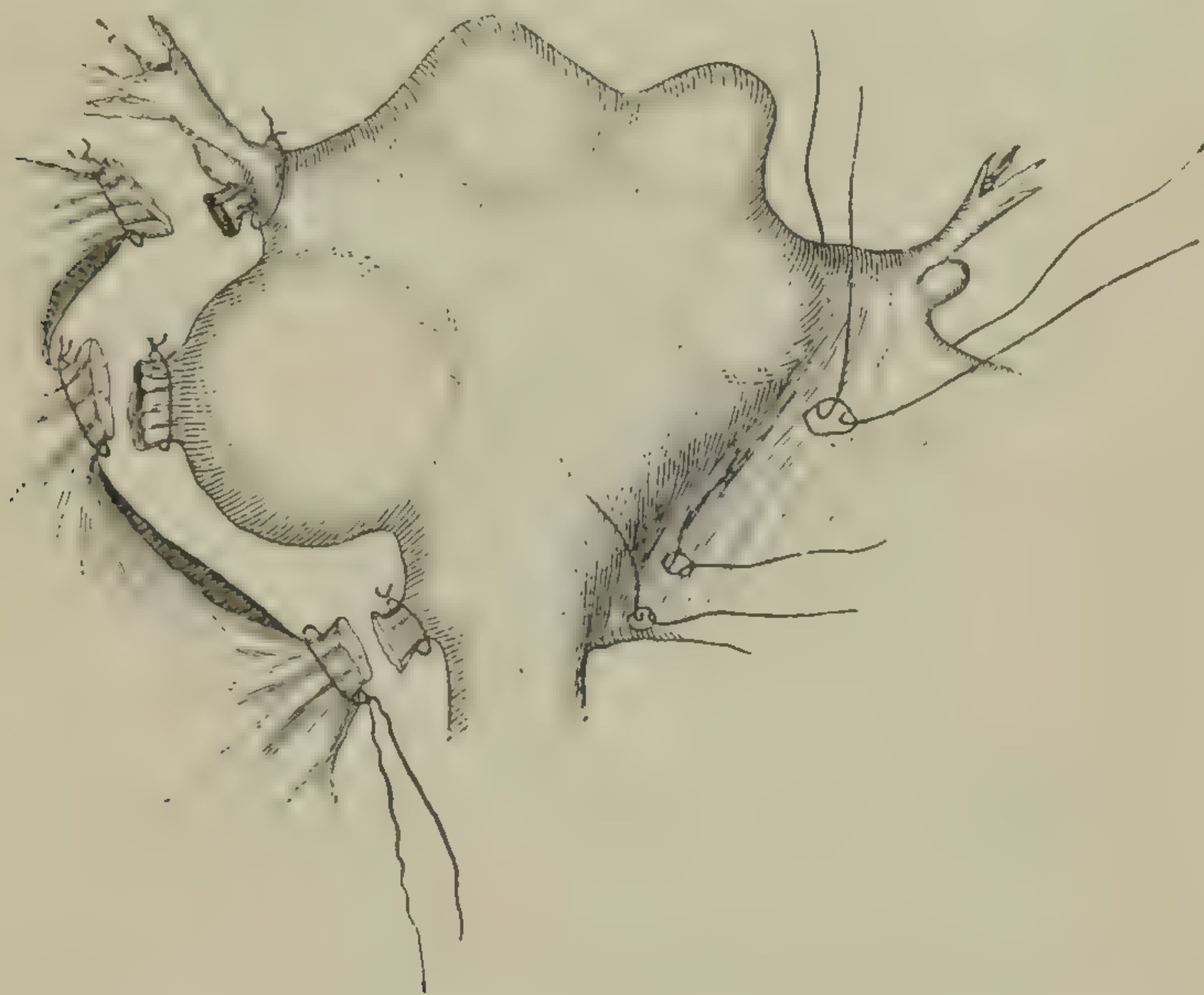


FIG. 129.—APPLICATION OF LIGATURES IN ABLATION OF THE FIBROID UTERUS.

without injury to the uterine arteries. The broad ligament is now incised *between the two sets of ligatures* from the point above the upper set to the lowest one at a point on the cervix corresponding to the internal os ; the same process is repeated on the broad ligament of the opposite side of the pelvis. The only attachments of the uterus are now the vesicouterine fold and the parametrial tissues. A semicircular incision through the serous covering only is then carried across the anterior surface of the uterus about a half an inch above the vesicouterine fold and the flap dissected

down with the finger or blunt scissors until the bladder is separated and the vagina entered. Great care must be taken in doing this not to wound the bladder, which may be partially filled with sterilized water in order that its outline may be more clearly made out. The index finger of the left hand is now inserted into the vesicouterine space and the vaginal incision continued round the cervix. An assistant now carries the uterus forward over the symphysis pubis, and Douglas's culdesac is opened, the finger in the opening acting as a guide. A double ligature is now passed, by means of a Deschamp's needle, about a quarter of an inch from the cervix in such a manner as to include the uterine artery; the distal portion of this ligature is tied and the long ends turned in the vagina and allowed to remain, the proximal part is also tied close to the cervix to control anastomotic hemorrhage from the tumor. The tissues between the ligatures are now severed, leaving enough tissue in front of the distal portion of the ligature to prevent its slipping. After the same procedure has been done in the opposite side, the tumor is removed.

The pelvic cavity is now thoroughly cleansed with sterilized water and dried. In order that the cut surfaces of the broad ligament shall be kept away from the intestines and from each other, strips of gauze are passed from above into the vagina, or the edges of the vaginal mucous membrane may be united by a continuous catgut suture, the edges of the peritoneum being brought together in a like manner. A light packing of iodoform gauze may be inserted in the vagina and the vulva covered with a pad of sterilized gauze. The abdomen is closed by sutures of silk-worm gut. The after treatment consists in feeding the patient as after ovariectomy, the urine drawn by catheter for a day or two. After twenty-four hours, the bowels are to be moved by salines supplemented by an enema. Unless a rise in temperature occurs, the vaginal dressing is to be renewed at the end of a week. The abdominal wound is to be treated in the usual manner.

Salpingo-Oophorectomy.—This operation consists in the removal of the tube and ovary for the cure of fibroids. The abdomen is opened as in the former case. The ovary having been found and drawn into view, the blunt Deschamp needle is passed as close as possible to the uterus, care being taken not to wound

the anastomotic coil between the ovarian and uterine arteries. One ligature is tied close to the uterine cornu in such a manner as to include the sympathetic nerve of the tube. The broad ligament is ligated below the ovary, the lock suture being employed. Both ovary and tube are removed. The operation is applicable only in cases of small pelvic growths, and where the uterine appendages can be easily removed.

Operation for the Cure of Fibroids by Ligation of the Uterine Arteries.—Dr. F. H. Martin, of Chicago, has devised an operation for the cure of fibroids. The technic is as follows:—The patient having been antiseptically prepared and placed in the lithotomy position, the cervix is exposed by broad retractors. The mucous membrane of the vagina is then incised about three-fourths of an inch from the cervix on the right and left sides of the vagina and at right angles to the broad ligament. The wound is about one and one-half inches in length. The finger is inserted into the left incision and the contents of the left broad ligament carefully dissected from its peritoneal covering behind and from the bladder in front. As soon as the uterine artery can be isolated, a ligature of number 12 braided silk is passed around it and tied, the ends being cut short. If there are several branches the artery must be ligated in two sections. The parts are thoroughly irrigated and the wound closed by catgut sutures. After performing the same operation on the right side, the vagina is again cleansed and loosely packed with iodoform gauze.

Martin's Myomectomy is an operation for the enucleation of large subperitoneal fibroids through an abdominal incision. The operation consists, after opening the abdomen, of splitting the capsule of the tumor; peeling it out and uniting the walls of the cavity by deep interrupted sutures. If necessary the cavity is drained through the vagina.

UTERINE POLYPI.

A polypus is a tumor attached to the uterine wall by a small pedicle.

Varieties.

I. Glandular.

2. Mucous.
3. Fibrous.
4. Placental.
5. Papillomata of the cervix.

Pathology.—The *glandular variety* consists of hypertrophied cervical *glands* filled with the viscid fluid normally secreted by these glands and usually associated with a certain amount of hypertrophy of the whole mucous lining of the cervical canal (*Thomas and Mundé*).

Mucous polypi are usually multiple. They are *local* hypertrophies of the uterine mucous membrane, and are found most commonly in the cervix.

Fibrous polypi are small submucous fibroids attached by a pedicle. They take their origin within the uterus, frequently from the cervix, and are gradually forced out through the os by uterine contractions, thus becoming vaginal. They are composed of fibrous tissue and a few blood vessels. Their shape is ovoid or pyriform.

Symptoms.—Increased hemorrhage at first at the menstrual periods, later the bleeding is continuous. If the polypus has been forced through the internal os there will be painful uterine contractions. Sterility, endometritis, and later anemia may result from loss of blood.

Physical Signs.—Examination with the finger will detect the pyriform tumor protruding through the os or extending into the vagina. If attached low down, the finger passed around the cervix will soon feel this point of attachment.

Uterine polypus may be confounded with inversion of the uterus. (For differential diagnosis see chapter on Inversion of the Uterus.)

Treatment.—When the polypus is attached inside the uterine cavity high up, the cervix should be dilated, the tumor may be grasped in a pair of forceps and the pedicle twisted off, or the growth may be removed by galvanocautery or wire *écraseur*. If attached low down, a V-shaped incision can be made at the base of the pedicle in the mucous membrane and the tumor removed. The uterus may then be packed with iodoform gauze. Multiple polypi may be removed with a sharp curette. All these opera-

tions should be done under the strictest asepsis. Endometritis accompanying the condition should be treated as in other cases.

Cancer of the Uterus.

Cancer of the uterus may appear as either carcinoma or sarcoma. Carcinoma arises from epithelium. Sarcoma from connective tissue. The disease may attack either the cervix or body of the organ, although the former is the more common seat.

Cancer of the *cervix* appears as *carcinoma*, pathologically divided into—

1. Epithelioma.
2. Encephaloid, medullary (or soft).
3. Scirrhus (or hard) carcinoma.

Another form of carcinoma is occasionally described as malig-

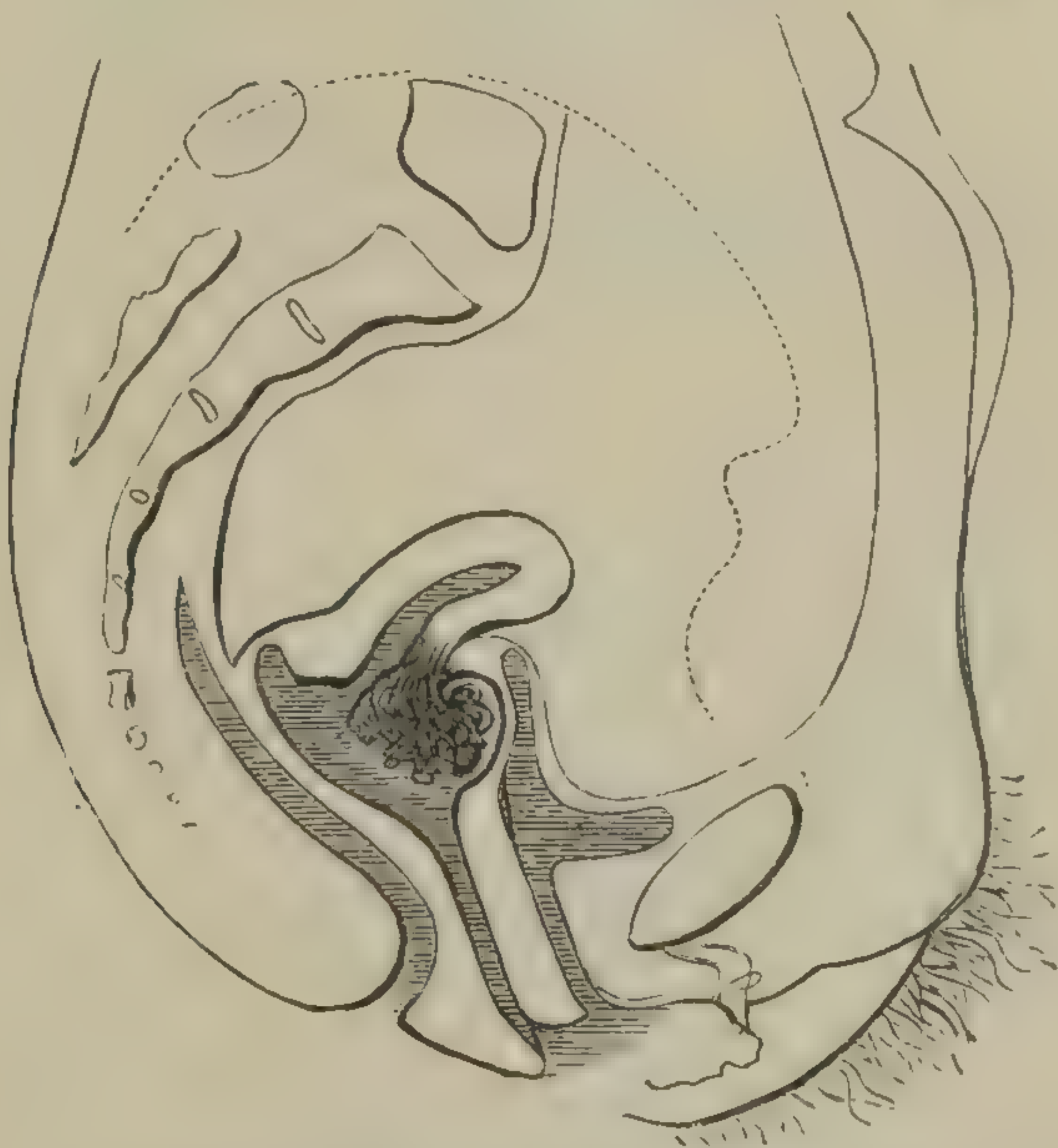


FIG. 130.—EPITHELIOMA AFFECTING ANTERIOR LIP OF CERVIX.

nant adenoma. It consists of a reproduction of the tubular glands of the body of the uterus, or of the branching cervical glands. It is rare.

Cancer of the body is usually the epithelioma or encephaloid carcinoma; it occurs later in life than cancer of the cervix, and is most common in unmarried or sterile married women. Sarcoma



FIG. 131.—EPITHELIOMA AFFECTING POSTERIOR LIP OF CERVIX.



FIG. 132.—EPITHELIOMA AFFECTING BOTH LIPS OF CERVIX, VAGINA AND BLADDER.

is more rarely found; when present it appears as either circumscribed fibrous sarcoma or diffuse sarcoma of the mucous membrane. Having once started, the disease may extend in three ways.

1. By continuous growth.
2. By the lymphatics; contagious cell elements being absorbed and carried through these glands.
3. By the venous system.

Causes.

- Race*.—1. Malignant disease is very uncommon in the negro.
2. As predisposing causes are mentioned—hereditary tendency.
 3. Repeated parturitions.
 4. Erosions and lacerations of the cervix.
 5. Habitual miscarriages.
 6. Mental anxiety.
 7. Traumatism.
 8. Too frequent coition.

Little is known of the direct exciting cause.

Age, usually between the fortieth and sixtieth year, although it has been found as early as the thirteenth year.

Pathology.—*Carcinoma*.

(a) *Epithelioma, cauliflower growth; cancroid*, is usually found in the lining membrane of the cervix, beginning most frequently in the posterior lip as a superficial growth, not involving the connective tissue. The tissues of the cervix undergo infiltration with *epithelial cells* arranged in the form of trabeculæ. In the true cauliflower growth, the hypertrophy of the papillæ of the cervix predominates, the cells being arranged in clusters or shafts. In cancroid, no hypertrophy of the papillæ occurs. Microscopically, it appears as a red cauliflower-like mass, crumbling under the finger and bleeding profusely. The vagina may be involved secondarily, or the disease may spread to the body of the uterus.

(b) *Encephaloid, Medullary or Soft Cancer*.—There is an excessive, diffuse proliferation of round, spindle or caudate epithelium. The cervix is greatly enlarged, generally in the *supra-vaginal portion*, giving to the examining finger the sensation of a somewhat hard, nodular body, sometimes described as “turnip” shaped. There is less bleeding and ulceration than in the preceding form.

The parametrium does not become involved until late in the disease.

(c) *Scirrhus*, or *Hard Cancer*, appears in the parenchyma of the cervix; many authorities deny that it is ever found in the body of the uterus. It is characterized by a hyperplasia of the *fibrous stroma*. The cervix is much enlarged, very hard and nodular, giving to the examining finger the feel of cartilage. No erosions can be found early in the disease, and little or no hemorrhage follows examination. Both encephaloid and scirrhus spread more rapidly than epithelioma, and produce metastasis.

In the late stages of cancer, when ulceration has occurred and the tissues break down, the three forms cannot be distinguished.

Symptoms.—

1. *Hemorrhage*.—Whenever menstruation seems to return after the menopause, suspect cancer. This hemorrhage will increase later in the disease and will follow vaginal examination, coition, or straining at stool.

2. *Leukorrhea*.

3. *A reddish-brown, foul-smelling discharge*, the odor of which is characteristic. This discharge marks the period of ulceration.

4. *Pain*.—This symptom may or may not be present itself. When the cervix alone is involved, there may be little or no pain. When the body of the uterus is attacked, there may be a dull gnawing pain in the pelvis and back. Pain may also be felt radiating down the lower extremities. In cancer of the body, pain is an early symptom.

5. *Cachexia*.—Failure of health may not occur until the disease has progressed to a considerable extent; when the debility occurs, it is well marked and characteristic. There may be obstinate constipation either from involvement of the rectum or from the great pain excited by the act of defecation. Uremia and occasional rises of temperature may occur late in the disease. Pruritus vulvæ may appear, caused by the irritating vaginal discharge.

From extension of the disease to neighboring organs various forms of fistulæ may be produced.

Physical Signs.—If cervical epithelioma is present, the finger comes in contact with a glandular, friable growth, springing from one or both lips of the cervix.

Encephaloid.—In this form of carcinoma, the cervix is somewhat swollen and nodular and moderately soft. The greatest enlargement is in the supravaginal portion, extending toward the parametra.

Scirrhus gives on examination a hard, nodular feel; the mucous membrane seems to be immovably fixed on the subjacent connective tissue (*Penrose*). Dilation of the cervix is extremely hard to accomplish. Examination through a speculum will aid in distinguishing the growth. The color of the cervix will be livid or purple. Microscopical examination will confirm the diagnosis.

In *cancer of the body of the uterus* the cervix may be but slightly enlarged, while the body is increased in size. Examination of the interior will show the length of the cavity to be increased and its walls covered with irregularities. Fragments should be removed with a curette for microscopic examination.

Differential Diagnosis.

1. Small fibroid in the cervix or sloughing fibrous polypus. The age at which fibrous tumors appear is younger than that of cancer. No hemorrhage follows examination; no cachexia; the rim of the cervix will be found encircling a polypus, while the cervix itself is not diseased. Microscopical examination will confirm the diagnosis.

2. *Syphilitic Ulceration*.—The history of the patient must be taken into consideration. Condylomata are rare. Both specific ulcers and condylomata disappear under proper antisyphilitic treatment.

3. *Erosion of the Cervix with Ectropion*.—The pain and general symptoms are not those of malignant disease. The cervical lips can be brought together and the eroded surface will disappear.

4. *Hypertrophic Elongation of the Cervix with Induration*.—The cervix is capable of dilatation and the mucous membrane is movable on the tissues beneath. The general history of cancer is absent.

Malignant disease of the body may be mistaken for—

1. Retained placenta.
2. Sloughing fibroid.
3. Cystic degeneration of the chorion.

The history of the patient combined with microscopical examination will aid greatly in the diagnosis.

Prognosis.—Bad, and certainly fatal without operation. Cancer of the body is rather slower in its fatal action than where the cervix is attacked. Malignant disease predisposes to miscarriage and pregnancy hastens the growth of the disease. The fetal mortality is great.

SARCOMA OF THE UTERUS.

“ A connective-tissue tumor of embryonal type, formally known as recurrent fibroids ” (*Penrose*).

Pathologically it is divided into—

1. Circumscribed fibrous sarcoma.
2. Diffuse sarcoma of the mucous membrane.

It usually appears in the body of the uterus and is very rarely found in the cervix.

Cause.—Little is known as to the exciting cause. It usually appears between the fortieth and fiftieth year. Unmarried or sterile married women, as well as those who have borne children, may be affected.

Pathology.—*Circumscribed fibrous sarcoma*, originates in the parenchyma of the uterus. Like fibroid tumors it is classified by its location into subserous, interstitial, and submucous. *Macroscopically*, the tumors appear as firm, knotty growths in the uterine wall or may project into its cavity. They are not encapsulated. *Microscopically*, they consist of localized infiltration of round cells.

Diffuse sarcoma of the mucous membrane originates from the connective tissue of the epithelium. *Macroscopically*, there is at first a general swelling of the mucous membrane, which later softens and crumbles. The tumor has a grayish-white color and soft, pulpy consistence, resembling brain tissue. *Microscopically*, the mucous membrane is infiltrated with small round or spindle cells. Ulceration is not so deep in sarcoma, as in carcinoma, the growth is slower and metastases are less likely to occur.

The hemorrhages of sarcoma are not due to ulceration of the

blood-vessels, as in true cancer, but to hyperemia of the mucous membrane.

Symptoms.—

1. Hemorrhage, first appearing as menorrhagia or as irregular hemorrhages after the menopause.
2. Pain may or may not be present.
3. Watery discharge containing grayish-white shreds resembling pieces of brain substance. The odor of the discharge is slight or may be absent altogether.
4. Cachexia.
5. Enlargement of the uterus, found on examination.

Diagnosis.—Sarcoma may be mistaken for—

1. Hemorrhagic or villous endometritis.
2. Retained placenta.
3. Sloughing polypi.
4. Carcinoma of the body.

The diagnosis must be made from the symptoms and by removing fragments with scissors, knife or curette, and examining them carefully with the microscope.

In all forms of cancer, death is caused frequently by exhaustion, rarely by peritonitis, very frequently by *uremia* or by *septicemia* or *hemorrhage*.

Treatment of uterine cancer may be divided into—

Radical or operative, and the *palliative*. The former consists of *high amputation of the cervix*, or *vaginal hysterectomy*. Amputation of the cervix is indicated only when the uterine neck is involved to a slight extent. Schroeder's supravaginal amputation is the operation generally chosen.

The operation is done as follows, the cervix is drawn down with a pair of vulsella forceps in the hands of an assistant. The anterior culdesac is incised around the cervix, and the latter separated from the bladder nearly as far up as the peritoneum. The cervix is drawn forward and the posterior culdesac incised. The anterior and posterior lips of the cervix are now removed. The next step in the operation is to unite the anterior lip of the cervix to the anterior vaginal wall, and the posterior lip to the posterior vaginal wall, by sutures. The lateral incisions are closed by suturing to the uterus above the line of amputation.

Vaginal Hysterectomy.—Colpohysterectomy.—The removal of the uterus by the vagina is indicated in all cases of cancer in which the disease is confined to the uterus. It should not be attempted when the broad ligaments are involved, or when the pelvic or vaginal lymphatics show extension of the disease in those directions.

Adhesions noncancerous in character or pregnancy are not

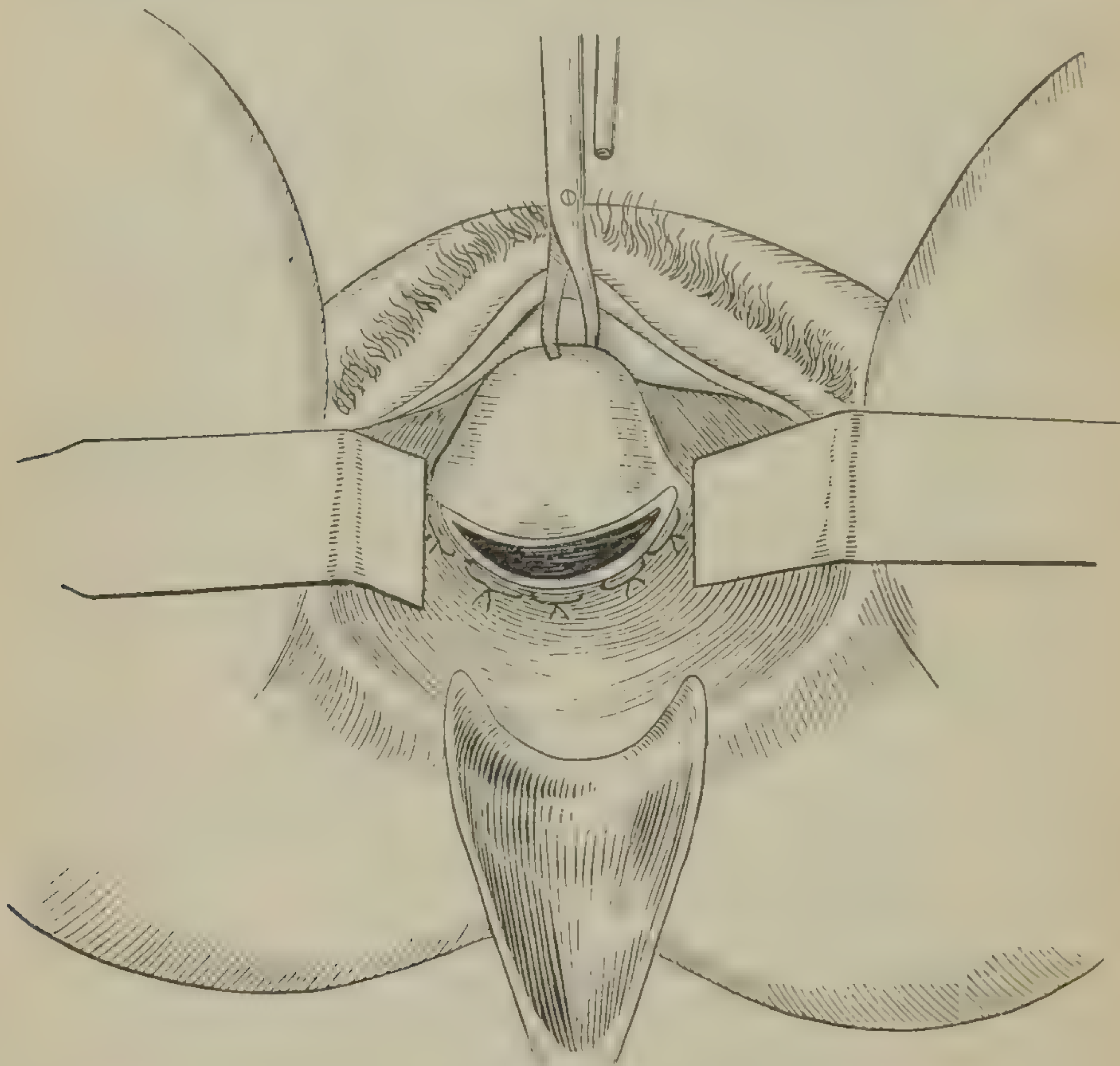


FIG. 133.—VAGINAL HYSTERECTOMY.

Opening of the posterior culdesac, and suture of the vagina. (*Martin.*)

contraindications to the operation. In determining the extent of the growth, examination under anesthesia may be necessary. The vagina must be thoroughly disinfected for several days before the operation. If the cervix be covered with friable vegetations caus-

ing a fetid discharge, these must be removed with a curette about a week before the operation. After curettement, the cervix should be treated with applications of chlorid of zinc 1 to 10, or the actual cautery, followed by irrigations twice daily of bichlorid of mercury solutions 1 : 2000, followed by tampons of iodoform gauze. A few hours before the operation, the bowels should be opened by an

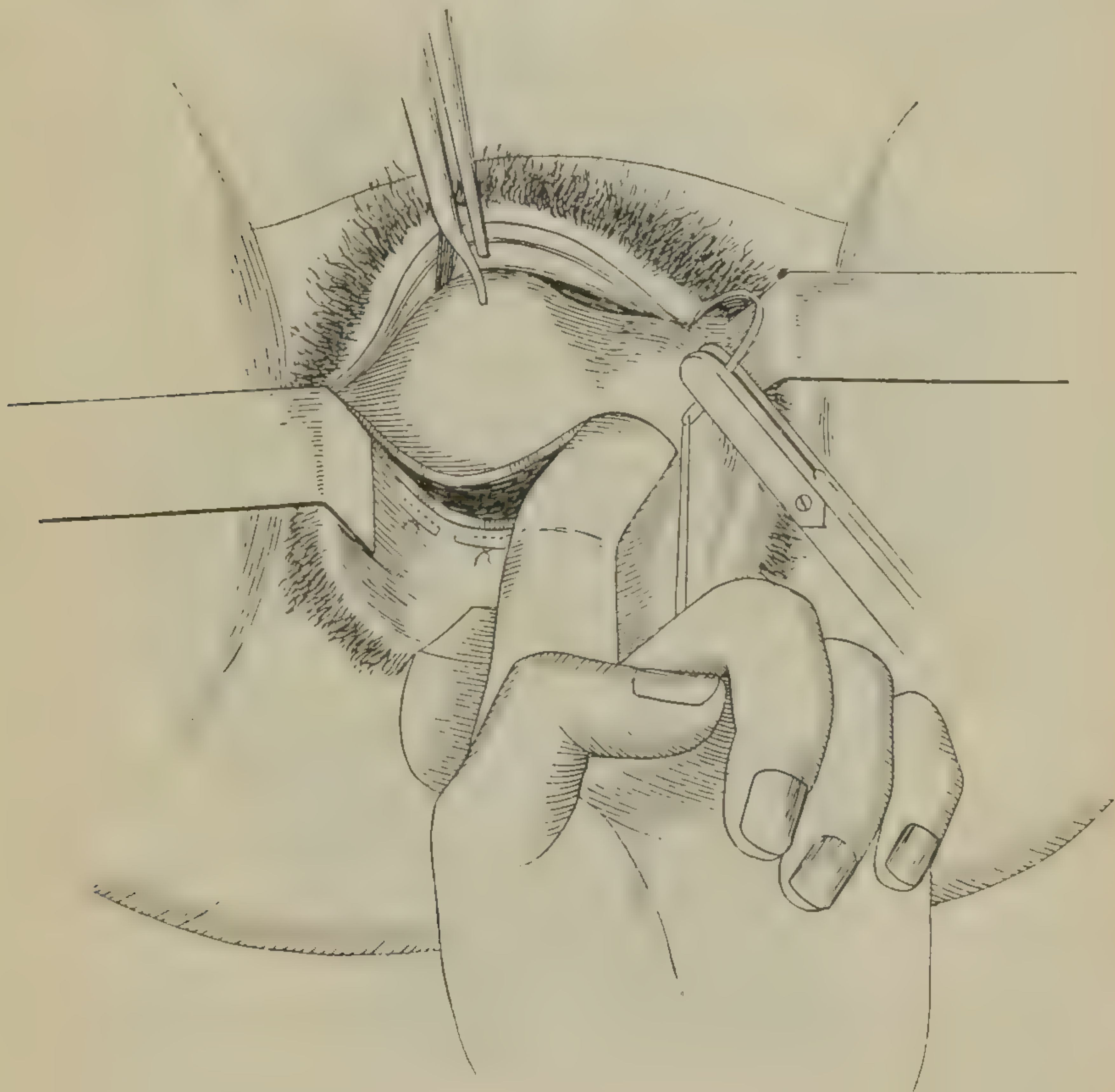


FIG. 134.—VAGINAL HYSTERECTOMY.
Suture of the vaginal floor. (*Martin.*)

enema, and the bladder emptied immediately before the operation begins.

Martin's Colpohysterectomy.

1. The patient is etherized and placed in the dorsosacral position, the vaginal walls are retracted and the perineum depressed by a Sims' speculum. Some operators recommend that at this point

in the operation the cervix be drawn down by a vulsella and a continuous suture be run through both lips of the cervix, so as to close it and thus prevent infection from this septic surface. When the vagina is so small as to render the operation difficult, the perineum may be split (perineotomy) and united by sutures immediately after the removal of the uterus.

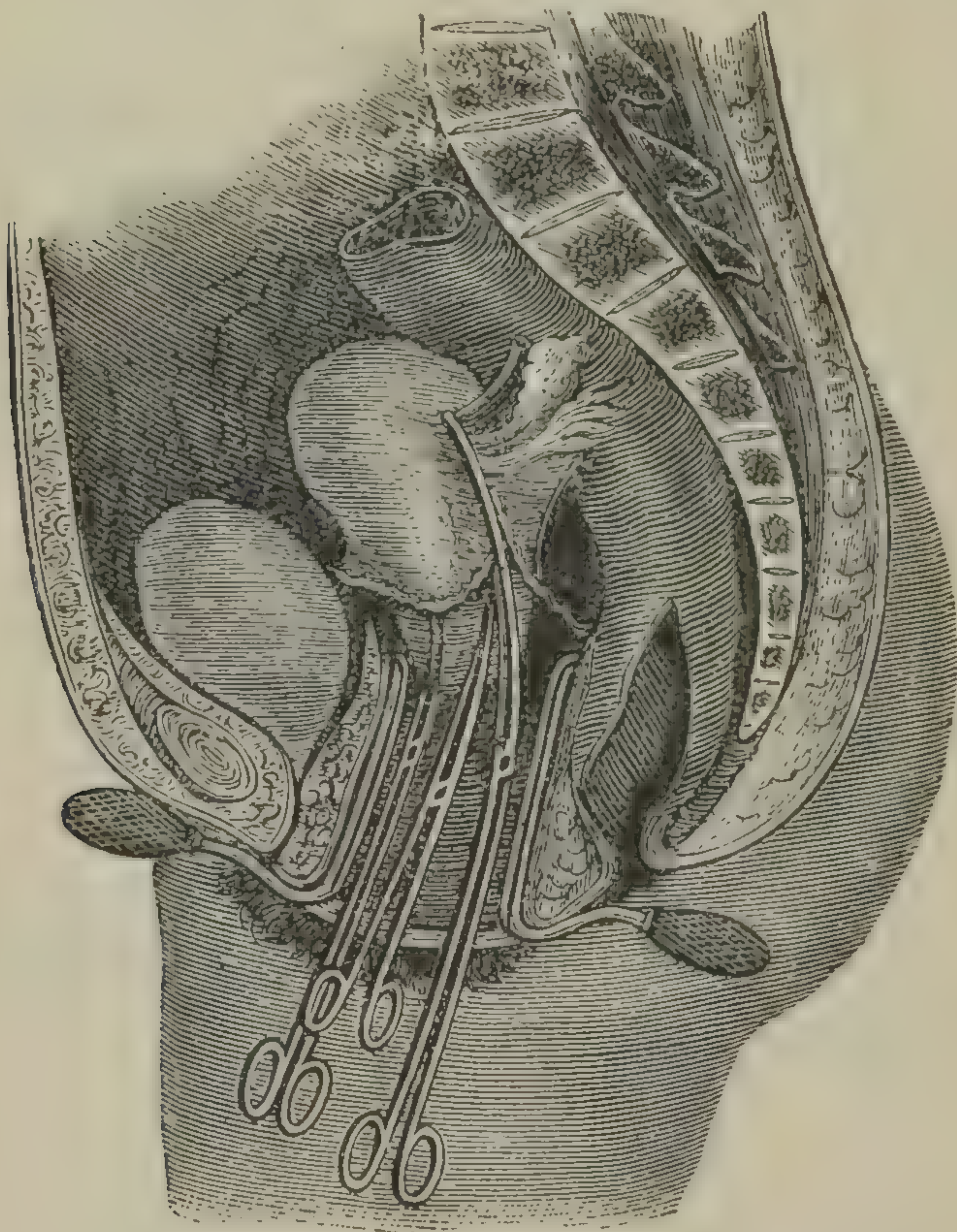


FIG. 135.—VAGINAL HYSTERECTOMY.
Forceps on the base of the broad ligament. (*Pean.*)

2. *Opening Douglas's Culdesac.*—(a) The posterior wall of the vagina is stretched by continuing the traction on the cervix downward and forward. (b) A transverse incision is then made through the entire width of the culdesac, down and through the peritoneum. Some operators recommend that the peritoneal (posterior) layer of Douglas's pouch be now sutured to the posterior

vaginal wall, so as to cover the exposed cellular tissue. (c) A large gauze pad or sponge with a string or wire attached, carefully sterilized, should be inserted to prevent prolapse of the intestines.

3. *Ligation of the Uterine Artery. Hemostatic Suture of the Pelvic Floor.*—The operator's left index finger is passed through Douglas's culdesac, and the left broad ligament is pressed down against the vaginal roof, while a large curved needle armed with strong silk and grasped in a needle holder is passed through the anterior part of the left lateral fornix so as to pierce the broad ligament above the uterine artery, and made to reappear in the vagina near the end of the posterior incision. The same procedure is repeated on the right side. The bases of the broad ligaments are now incised by means of scissors, close to the uterus and as far up as the space controlled by the ligature extends.

4. *Opening the Vesico-uterine Pouch or Anterior Vaginal Fornix.*—The anterior culdesac is made tense by drawing the cervix backward, and an incision is made down to the muscular coat of the uterus at the point of junction of the anterior surface of the cervix with the vaginal mucous membrane, after which the bladder is separated from the uterus by means of blunt-pointed scissors, a scalpel handle or the fingers. Care must be taken to keep as near as possible to the cervix, as there is danger of wounding the ureters.

5. *Retroversion of the Uterus for Ligation of the Superior Portions of the Broad Ligaments.*—This should be done by a strong pair of tenacula, forceps or fingers, or where this is impossible, the uterus may be drawn down with vulsella forceps. The ligaments are ligated from below upward and carefully severed from the uterus. The incision is completed and the uterus removed. The upper portion of the broad ligament on each side should be united to the commissure of the vaginal wound, so as to support the vagina from above and prevent its prolapse. A careful cleansing and disinfection of the wound should now be made.

The Clamp Method.—Hemorrhage from the broad ligaments may be prevented by clamps or broad ligament forceps, one or more being applied to the broad ligament of each side. When used they are allowed to remain in position for from forty-eight to seventy-two hours after the operation.

6. *Drainage and Dressings.*—After thorough disinfection, the vagina is filled with strips of iodoform gauze and a gauze tampon is introduced between the stump of the two broad ligaments and allowed to project from the vulva. The vaginal wound is left open to favor drainage. Where clamps are used, the dressing is the same, strips of iodoform gauze being loosely packed around them. The dressings must be changed according to the amount of discharge. If not soiled, they should be allowed to remain for four days. The tampons are removed at the end of the first week, at which time the peritoneal wound will be firmly closed. The patient should be allowed to get up at the end of three weeks.

The after treatment is the same as that following *celiotomy*.

Palliative Treatment. Indications.—When the cancerous infiltration has extended to the broad ligaments and pelvic lymphatics or where the vagina and neighboring organs are extensively involved.

For the offensive odor, antiseptic injections, such as carbolic solutions, solutions of potassium permanganate, solutions of one part bromine to three parts water, chloral hydrate ℥j to iij to the pint of water or thymol should be used. For the hemorrhage, abstinence from sexual intercourse, injections of alum, tannin, vinegar or tampons of cotton saturated with subsulphate of iron in solution, powder or with glycerin. Ergot should be given internally. *The bowels* should be kept open. Tonics in the form of iron, strychnin or arsenic should be given for the cachexia. Arsenic is supposed by some authorities to have a certain amount of action in controlling the disease. For the pain, opium in some form is indicated.

A palliative operation may be done by removing the granulating masses with a sharp spoon curette or knife, and applying fuming nitric acid, actual cautery, or chlorid of zinc, equal parts with water. Where the latter is used, excoriation of the vagina must be prevented by smearing it with one part bicarbonate of soda in three parts vaselin. When the chlorid of zinc is applied on tampons, in the cervical or uterine canal, the lower part of the vagina should be packed with tampons soaked in a solution of bicarbonate of soda. Various remedies for the cure of cancer, such as the administration of cinnamon, methyl blue, salicylic acid or the

hypodermic injection of the bacillus of erysipelas or its toxin, have not met with generally good results. The latter treatment seems to have had a certain amount of success in a few cases.

ANATOMY OF THE OVIDUCTS.

At an early period of intrauterine life, the ducts of Müller fuse at their inferior portions to form the vagina and uterus. Superiorly, they remain separate and constitute the oviducts or Fallopian

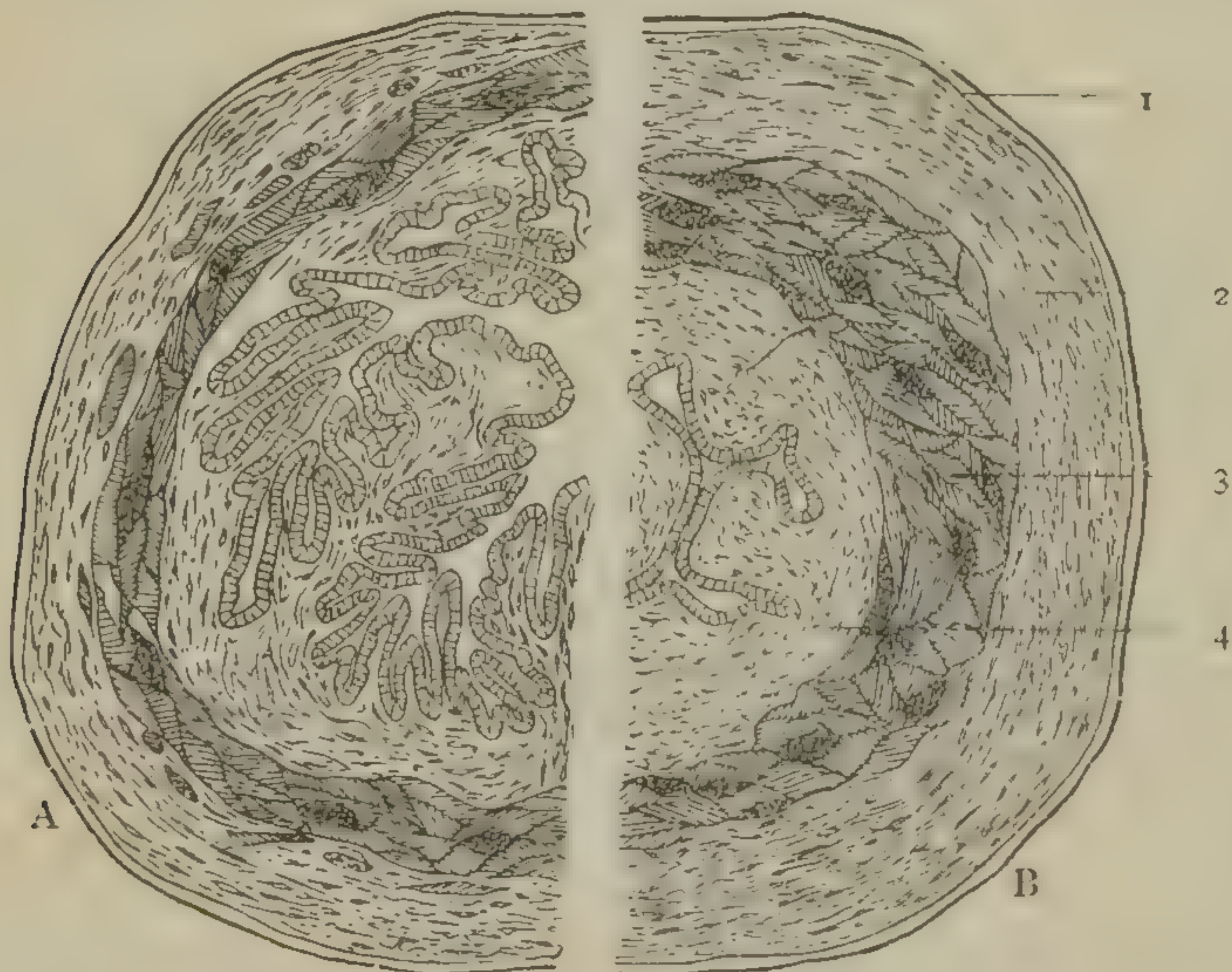


FIG. 136.—NORMAL FALLOPIAN TUBE. (*Wyder.*)

A. Enlarged section from the ampulla, showing the folding of the mucous membrane and thinness of the walls. B. Section from near the uterus, showing small size of the lumen and thickness of the walls. 1. Serous coat. 2. Connective tissue supporting the serous coat. 3. Muscular coat. 4. Connective tissue supporting the epithelium.

tubes. The oviducts are two in number and lie between two layers of the broad ligament, taking their origin from the superior angles of the uterus on each side, posterior to the insertion of the round ligaments. They are about four inches in length, the right tube being sometimes slightly longer than the left. Their direc-

tion is generally upward and backward, then downward. At the outer or ovarian extremity of each tube is situated the *fimbriated* extremity or *infundibulum*, the expanded portion of the tube to which the fimbriæ are attached is called the *ampulla* or pavilion. The tuboovarian ligament connects the tube with the ovary. The internal end at its point of entrance into the uterine cavity is the narrowest part of the tube and is known as the *isthmus*. The upper part of the broad ligament which covers the oviduct is called the *mesosalpinx*. The blood supply of the oviducts is the same as that of the ovaries.

DISEASES OF THE OVIDUCTS.

SALPINGITIS.

An inflammation of the mucous membrane of the tubes.

Salpingitis is divided into acute and chronic.

Pathologically, it is divided into—

1. Simple catarrhal.
2. Salpingitis with occlusion of the ostium, but without distention.
3. Cystic distentions produced by occlusion of the uterine end of the tube, as pyosalpinx, hydrosalpinx, hematosalpinx.
4. Tubo-ovarian cysts (*Penrose*).

Pozzi gives a classification based on the clinical and anatomical features as follows :—

- | | | |
|---------------------------|---|---|
| 1. Noncystic salpingitis. | { | (a) Acute catarrhal.
(b) Acute purulent.
(c) Chronic parenchymatous.
(d) Pachysalpingitis. |
| 2. Cystic salpingitis. | { | (a) Hydrosalpinx.
(b) Pyosalpinx.
(c) Hematosalpinx. |

Causes.

1. Usually secondary to a gonorrheal or puerperal septic endometritis or sepsis produced by the use of dirty instruments.
2. Taking cold at the menstrual periods.

3. Excessive exercise.

4. Tuberculosis, syphilis or eruptive fevers.

Pathology.—The inflammation usually extends all along the mucous membrane of the tube to the fimbriæ and ovary. The abdominal opening is closed by adhesions, thus preventing escape of the contents of the tube into the abdominal cavity. Resolution is rare. At first there is a hyperemia of the mucous membrane more or less intense, later, swelling and softening of the tube, the tissues becoming friable; the fimbriæ share in the swelling. The mucous membrane is covered with a glutinous pus. Usually the abdominal opening now closes from adhesions. The uterine opening may remain patulous to permit the escape of the tubal

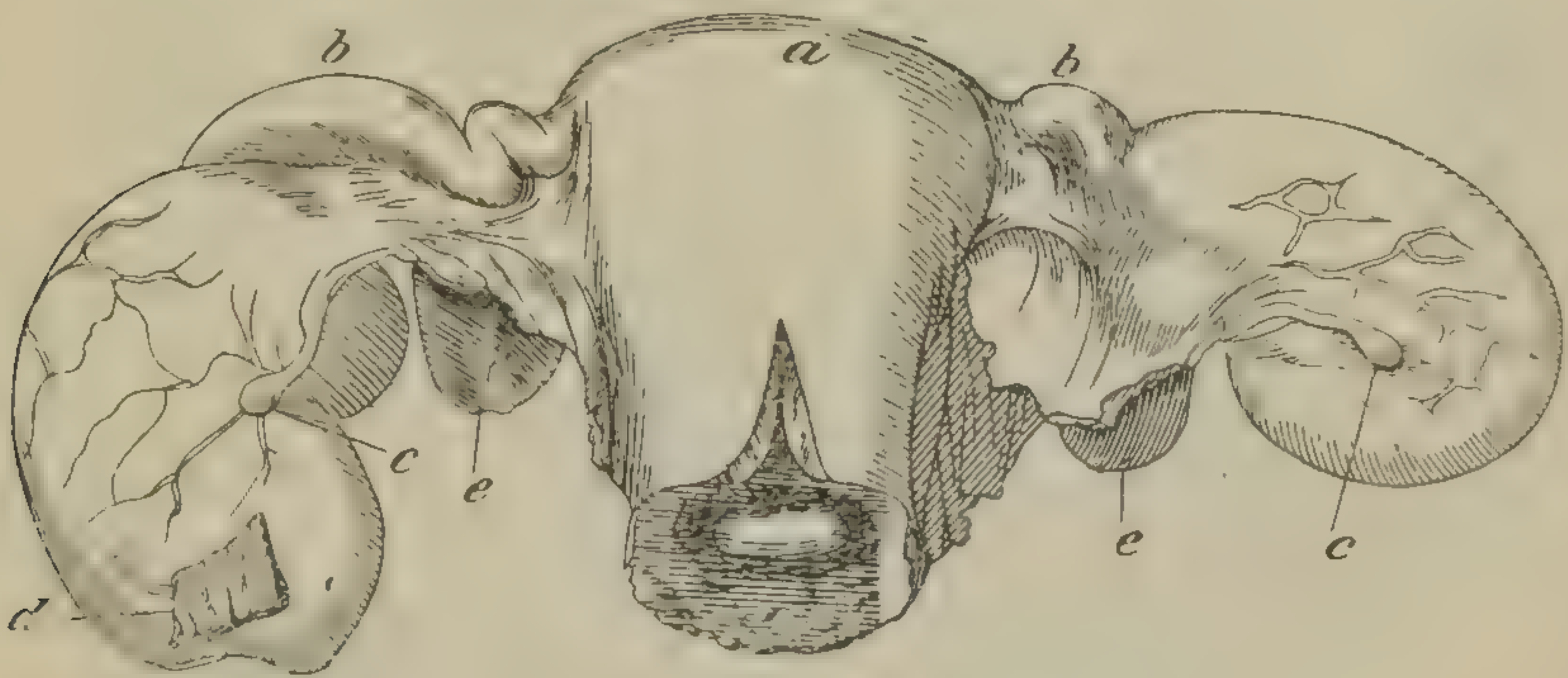


FIG. 137.—DOUBLE HYDROSALPINX.

a. Uterus. *b, b.* Fallopian tubes. *c, c.* Dilated portions of tubes. *d.* Remnant of adhesion. *e, e.* Ovaries.

contents, in some cases however, the swelling of the mucous membrane is sufficient to close this ostium, and thus cause a retention cyst. When this cyst contains clear mucus, it is known as *hydrosalpinx*, when blood is retained *hematosalpinx*, when purulent, *pyosalpinx*. The dilatation usually occurs in the outer two-thirds of the tube.

Extension of the inflammatory process beyond the mucous membrane into the muscular and areolar tissue may occur, producing hyperplasia of these structures and hypertrophy of the tube (pachysalpingitis). Although the tube is very much enlarged, its caliber is frequently much decreased in size and becomes lengthened and markedly tortuous. The tube and ovary are

frequently bound down to Douglas's culdesac by a mass of adhesions.

A localized pelvic peritonitis generally follows, though general peritonitis is rare. As a rule, acute salpingitis only affects one tube while in the chronic form both sides are diseased.

Microscopically.—An infiltration of inflammatory cells occurs; in mild cases this infiltration may be limited to the mucous membrane or in more severe forms may involve the muscular coat also. Destruction of the ciliated columnar epithelium takes place, either the cilia only or the entire masses of cells being destroyed.

Results of Salpingitis.—Rarely resolution occurs. The



FIG. 138.—LARGE HEMATOSALPINX.

walls of the tubes become thin and extensive adhesions to the intestines, uterus, ovaries, or broad ligaments follow. The tube may rupture and general peritonitis ensue. Various forms of ovarian disease may result; such as chronic ovaritis, cystic ovaries, ovarian or tuboovarian abscess. Uterine displacements are common; ectopic pregnancy may occur in a partly occluded tube.

Symptoms.—During the *acute stage*, increased temperature and pulse; considerable dragging and burning pain in the region of the affected tube. This pain is increased in walking or standing. When there is pus in the tube, distinctly septic symptoms may appear. There is abdominal tenderness; the patient lying

on the back with knees flexed. In the *chronic stage*, the principal symptoms are pain in the region of the affected tube, increased in walking, standing, going up or down stairs, straining at stool, heavy lifting, and coition. There is a history of repeated attacks of pelvic peritonitis, menorrhagia, and dysmenorrhea, the latter occurring two or three days *before* the flow begins. Sterility is common.

Physical Signs.—By bimanual examination, a sausage-shaped tumor will be felt above one or both lateral fornices of the vagina. A sensation of fullness in Douglas's culdesac. The uterus is retro-displaced and more or less fixed. When the tubes are not dis-

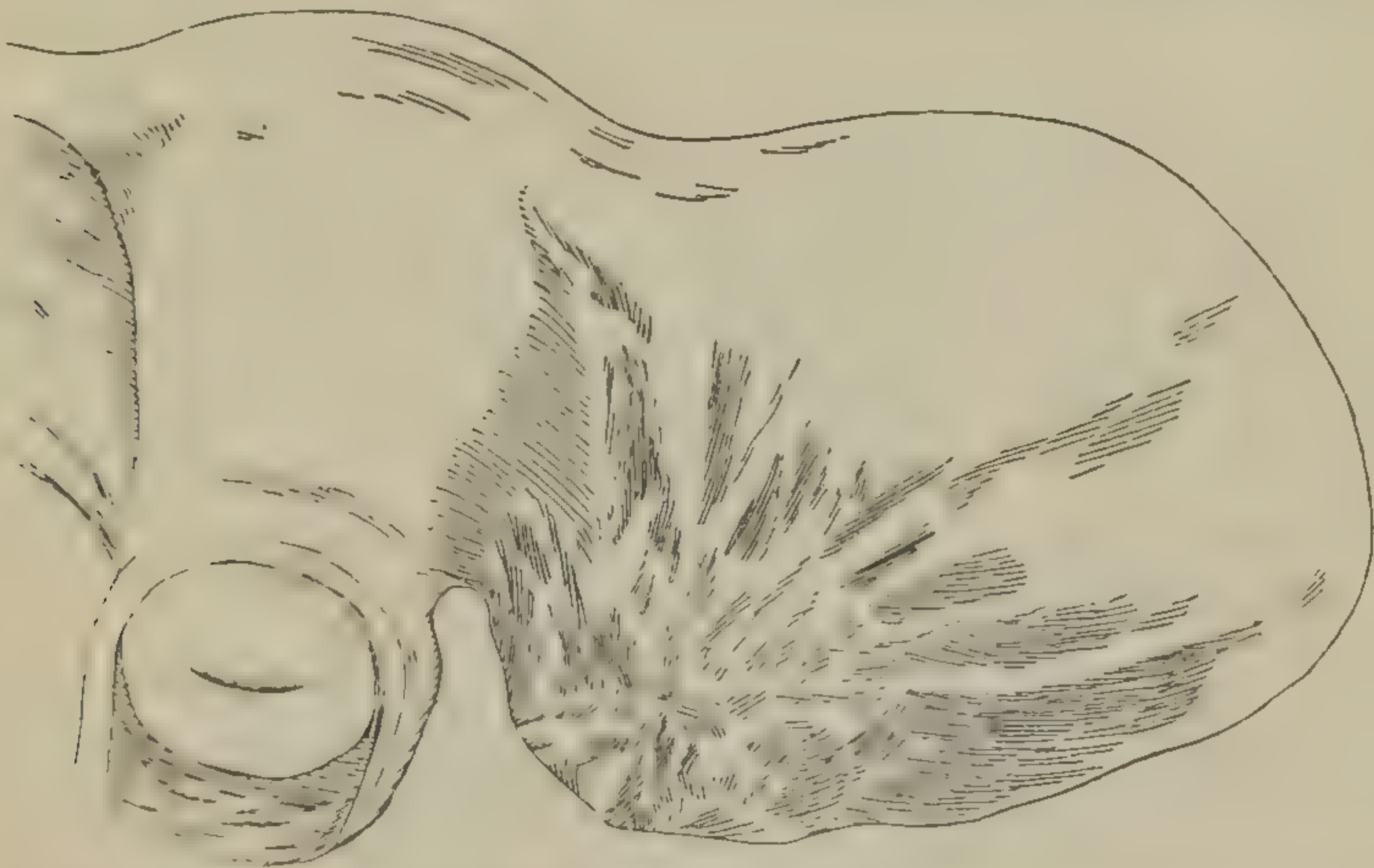


FIG. 139.—PYOSALPINX WITH OOPHORITIS AND UNIVERSAL ADHESIONS MASKING THE OVARY. (*Mundé.*)

tended they may be felt extending half an inch or so outward from the cornua of the uterus.

Diagnosis.—

Between Pyo- and Hydrosalpinx.—The former has a history of a more acute attack with a history of pelvic peritonitis; the outlining of the tumor is more difficult, the adhesions are more numerous and dense.

Ovarian cysts or early tubal pregnancy may be distinguished by their history, slight inflammatory symptoms and a scarcity of adhesions.

Hydro- or pyosalpinx must also be differentiated from simple

retrodisplacements, uterine fibroids, cancer of the head of the colon or appendicitis. The history of the case will aid in the diagnosis. The differentiation of appendicitis from right-sided tubal disease is sometimes very difficult.

Treatment.—

Prophylactic.—Aseptic cleanliness in the preparation of instruments and hands for examinations and operations. The same rules are applicable to the care of patients during confinement and the puerperal period. When the indications are not such as demand operation, the pain being but slight and a moderate menorrhagia existing, a palliative treatment may be used. The patient should rest in bed at the menstrual periods, the bowels should be kept open. Salines should be administered to diminish pelvic congestion. Copious hot water douches should be given in the vagina twice daily and the vault painted with Churchill's tincture of iodine. Gauze or cotton tampons saturated with boroglycerin or equal parts of iodine and glycerin are useful. Depletion of the pelvis may be aided by scarification of the cervix. Daily sitz baths of water, at a temperature of 105 degrees for half an hour, have been recommended. Ice poultices over the seat of inflammation give good results in the early stages.

Radical Treatment.—The indications for operative treatment depend upon the degree of the disease, the amount of pain suffered by the patient, and the failure of other forms of treatment to give relief. The operative treatment consists—

1. *In opening the abscess sac through the vagina*, drawing off its contents, thoroughly irrigating with an antiseptic fluid, and either introducing a drainage tube of hard rubber or glass or packing with iodoform gauze. The objection to this method is that there may be more than one pus sac and that the opening into the vagina may persist for a long time. There is also danger of injuring coils of intestine or of accidentally injuring the ureters or a large blood-vessel.

2. *Laparotomy or celiotomy*; removal of the diseased appendages through the abdominal incision.

TUBERCULOSIS OF THE OVIDUCTS

Is usually secondary to tuberculosis in other organs of the body, particularly tubercular peritonitis.

Pathology.—The tubes thicken, inflame, and become filled with caseous material. The bacillus tuberculosis is present and may be recognized by microscopic examination. The diagnosis is sometimes difficult.

Treatment.—Immediate operation, whether tubercular peritonitis is present or not. Simply opening the abdomen, cleansing and draining the peritoneal cavity, may give good results.

PELVIC HEMATOCELE.

Definition.—"Under this and synonymous titles of retro-uterine hematocoele, periuterine hematoma, and blood tumor of the pelvis, has been described an accumulation of blood in the pelvic



FIG. 140.—INTRAPERITONEAL HEMATOCELE.

cavity, either above or below the peritoneum. The disease consists in the collection of a mass of blood in the pelvis either above or below its roof" (*Mundé*).

"Pelvic hematocoele is an encapsulated extravasation of blood

into the true pelvis, located as a rule in Douglas's culdesac and displacing the uterus forward" (*Winckel*, Parvin's translation).

Causes.—

1. Rupture of an ectopic gestation sac.
2. Varicose veins of the broad ligaments.
3. Aneurism.
4. Rupture of the uterus, tubes, or an ovary.
5. Certain constitutional conditions, as scorbutus, purpura, chlorosis, or hemorrhagic peritonitis.

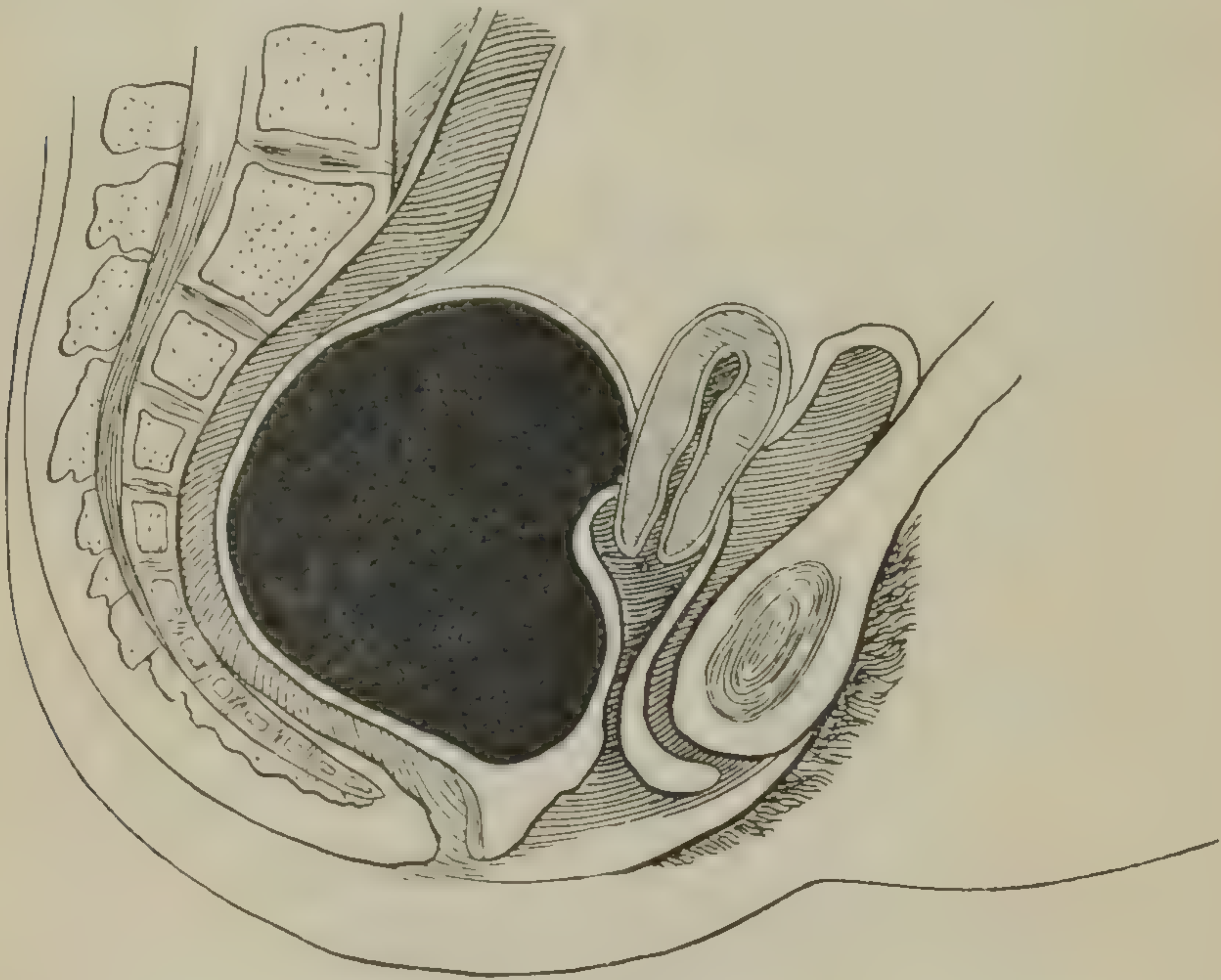


FIG. 141.—EXTRAPERITONEAL HEMATOCELE.

Pathology.—The hemorrhage having taken place, the blood collects in the most dependent portion of the peritoneum (intra-peritoneal) or in the areolar tissue beneath (subperitoneal), where it gradually coagulates. Later, when the fluid is absorbed, a hard, fibrinous tumor remains.

Symptoms of Internal Hemorrhage.—

1. Sudden pallor, with coldness of the extremities and faintness, and subnormal temperature.
2. Pain in the pelvic region.

3. Rapid and small pulse.
4. Nausea or vomiting.
5. Uterine, vesical, or rectal tenesmus.
6. Sensation of weight and heaviness in the pelvis.
7. Tympanites.

If the patient survives the first twenty-four to thirty-six hours, the secondary or inflammatory stage begins. The symptoms of this stage are—

1. Chilliness.
2. Increased temperature.
3. Rapid pulse.
4. Tenderness over the abdomen with increased tympanites.
5. Hot, dry skin.
6. Constipation, and occasionally suppression of urine.
7. Acute peritonitis.

Physical Signs.—By vaginal examination in recent cases can be felt a smooth, soft, and fluctuating tumor, usually posterior to the uterus and pointing in Douglas's culdesac. The uterus is displaced forward and upward or occasionally to one side. The cervix may be above the symphysis. Very rarely the tumor occurs anterior to the uterus.

Abdominal palpation may or may not demonstrate the presence of a tumor according to the extent of the hemorrhage, and whether or not the effusion is under or in the peritoneum. In the majority of intraperitoneal hemorrhages, however, a distinct abdominal tumor can be felt.

Diagnosis.—Hematocele must be differentiated—

1. From *Retrodisplacements*, particularly of the gravid uterus.—In displacements, the signs of internal hemorrhage are absent, and a sound passed into the uterus will quickly demonstrate the malposition. The coexistence of pregnancy can be determined by conjoined manipulation and the presence of the signs of the latter condition.

2. From *Ectopic Gestation*.—This condition develops slowly, many of the signs of pregnancy are present, and there is usually amenorrhea.

3. *Pelvic Cellulitis, Peritonitis, or Abscess*.—The tumor caused by the inflammatory process is usually found on one side of the

uterus and not behind it. Is rather slower in growth, is at first hard and gradually softens. The uterus is not displaced forward to the same extent. Menorrhagia is not present.

4. *Fibroids and ovarian cysts* are slower in growth, do not show symptoms of sudden pain, internal hemorrhage, and shock.

Results of Internal Hemorrhage.—Death may result in a short time from loss of blood and shock. Where the patient survives this the prognosis is fairly good.

Absorption may occur or septicemia may supervene, causing fatal peritonitis.

Treatment.—The indications for treatment are —

1. To check hemorrhage.
2. To produce reaction during the period of shock.
3. To relieve pain.

The patient must be put to bed and a full dose of opium administered, a bladder of cracked ice or cloths wrung out of iced water laid on the hypogastrium. Bottles filled with hot water or hot bricks wrapped in cloths must be placed around the feet and legs. Brandy and sulphuric ether should be given by mouth or hypodermatic injection. When the heart is weak, strychnin in doses of $\frac{1}{30}$ to $\frac{1}{10}$ of a grain with digitalis should be given hypodermatically. Hypodermoclysis of normal saline solution should be practiced if the loss of blood is considerable.

Surgical Treatment.—Where the hemorrhage results from sudden rupture of an ectopic gestation sac or other tumor, the indications are to do abdominal section, remove the sac or tumor, and secure bleeding vessels. In other cases, operative interference is not generally advised unless there is evidence that the hematocoele is producing active harm by its presence.

ANATOMY OF THE OVARY.

The ovaries are two in number and lie on each side of the uterus in the posterior fold of the broad ligament, about an inch from the fundus.

They are ovoid in shape, somewhat flattened antero-posteriorly, and measure about one and three-tenths inches in length, three-fourths of an inch in width, and about one-half of an inch in thickness. Their individual weight is from 60 to 135 grains. The external covering of the ovary is continuous with the posterior

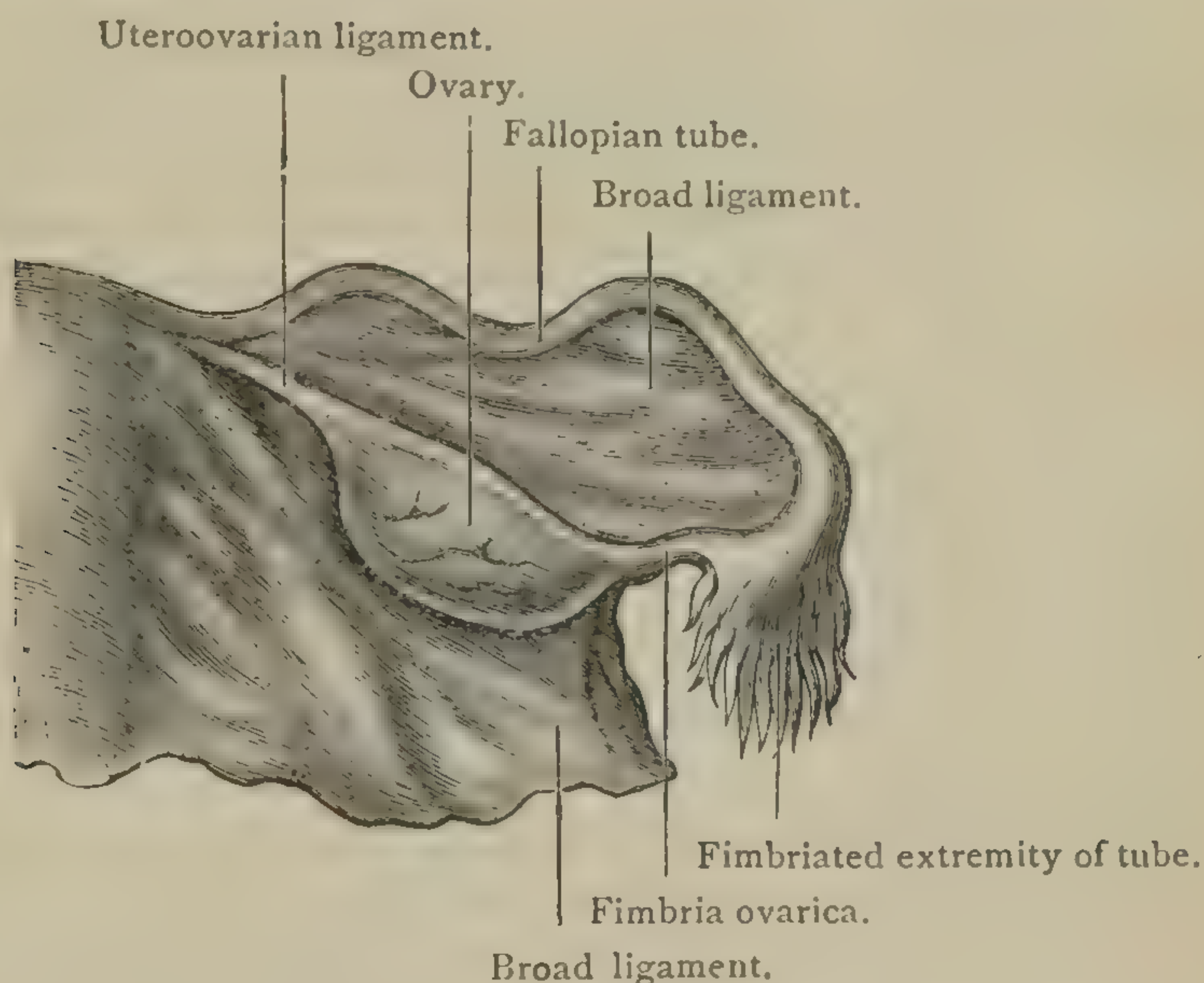


FIG. 142.—FALLOPIAN TUBE AND OVARY, SEEN FROM BEHIND. (*After Morris.*)

layer of the broad ligament. The anterior border or hilum is flat and is attached to the broad ligament; it is at this point that the blood-vessels and nerves enter to supply the gland. This is also known as the bulb of the ovary. The posterior border is convex in shape and is free. The surface of the ovary is smooth, except for the prominences caused by the ripening follicles and the scars left after these have ruptured.

A vertical section of the ovary shows it to be composed of two

distinct portions. The *cortical or superficial portion, or oophoron*, and the internal medullary or *bulbous portion*. The paroophoron is the portion in relation with the hilum. The ovisacs are found only in the cortical layer, the ripe ones being recognized by their size and shape. After rupture has taken place the follicle is known as a corpus luteum, from its yellow color.

Microscopically.—The cortex is continuous with the squamous epithelium of the peritoneum and is covered with a species of columnar epithelium consisting of nucleated cells (Germ epithelium). The medullary portion does not contain ovules; it is composed of nerves, vessels, muscular and connective tissue.

Ligaments.—

1. The *tuboovarian*, extending from the fimbriated extremity of the tube to the outer end of the ovary.

2. *Ovarian*, extending from the cornua of the uterus below the uterine origin of the Fallopian tubes to the inner side of the ovary on either side. It is formed by a longitudinal fold of peritoneum and is about one and one-fourth inches long.

3. *Infundibulopelvic*, or posterior round ligament, extends from the outer extremity of the Fallopian tube to the lateral wall of the pelvis on each side. Is also formed from the broad ligament.

The *arterial supply* of the ovary is derived from the anastomosing arch of the uterine and ovarian arteries. The *venous* supply is large and communicates with pampiniform plexus and ovarian veins.

The right ovarian vein empties into the inferior vena cava. The left enters the left renal vein.

The *nerve supply* is derived from the ovarian plexus.

The ovules are contained in small cystic bodies called follicles or Graafian vesicles. Their number has been variously estimated at from 30,000 to 650,000 in each ovary. At the period of full development, the human ovum is $\frac{1}{120}$ of an inch in diameter. It contains a germinal vesicle of $\frac{1}{300}$ of an inch, and within it is the germinal spot, the size of which is $\frac{1}{3000}$ of an inch. As the ovum grows within the ovisac, it advances from the center toward the periphery of the follicle, this advance being caused by the secretion of a fluid, the *liquor folliculi*, contained in its discus proligerus, and pressure is made against the thinned wall, until

rupture takes place and the ovum is discharged. The wall of the follicle consists of two layers, an outer, the stroma of the ovary, and an inner, the follicular epithelium. The greatest vascularity of the ovisac is at the point of rupture.

The **parovarium** consists of a series of small tubules lying between the layers of the mesosalpinx. These tubules radiate outward from the ovary and connect with a set of longitudinal tubules which run at right angles to them. Three sets of tubules are described:—

1. An outer series, free at one extremity and known as *Kobelt's* tubes;
2. An inner set, known as the *vertical* tubes;
3. A larger canal running at right angles to the vertical tubules, known as Gärtner's duct. Occasionally, this duct may be traced downward into the vagina. The parovarium corresponds in the female to the epididymis and vasa efferentia in the male. Gärtner's duct is homologous with the vas deferens in the male.

DISPLACEMENTS OF OVARIES AND TUBES.

The ovaries and tubes may be subject to hernia or prolapse. The former condition is rare; occasionally, however, the ovary may pass through the inguinal canal and present itself as a true hernia. It is more common on the left side. Hernias through the crural canal, the umbilicus, and greater sacrosciatic foramen have been known to occur.

Symptoms.—The presence of a tumor, and a dull, sickening pain and nausea are the principal symptoms.

Treatment.—Reduction by taxis should be carefully attempted, and after replacement the patient should wear a truss. If reduction cannot be made and the symptoms are severe, the sac should be incised and the ovary either removed or replaced.

PROLAPSE OF THE OVARY

May be caused by pregnancy, malposition of the uterus, chronic metritis, tubal or pelvic inflammation, etc.

When the uterus is retroverted, the ovary usually lies in front of or beneath the latter.

Symptoms.—Severe pain during or after defecation, pain after coition, dysmenorrhea, dysuria, etc. By vaginal examination an exquisitely sensitive tumor the size of an almond or walnut will be found in Douglas's culdesac. This tumor is movable, can be pushed upward, and the pedicle can be felt by dragging on the mass.

Treatment.—Rest in bed. Coition should be prohibited and the bowels carefully regulated. The patient should be placed in the genupectoral position and the prolapsed ovaries replaced and retained by a Thomas and Mundé pessary or other form of this instrument having a thick posterior bar.

When manual replacement is unsuccessful, the abdomen may be opened and the ovaries replaced by restoring the infundibulopelvic ligament or stitching the pedicle of the ovary to a point on the anterior parietes corresponding to the exit of the round ligament.

CONGESTION OF THE OVARIES.

A congestion in excess of that which occurs at ovulation, menstruation, or during coition.

Causes.—A frequent cause is a too close confinement at work or school, with over-study, in young girls. Other less frequent causes are: cardiac disease, continued fevers, extensive burns, phosphorus poisoning.

Symptoms.—Pain in the lateral pelvic regions for several days *before the beginning of* the menstrual flow. The pain usually lightens as menstruation is established and disappears toward its cessation. The decrease in pain is due to the relief of the engorged ovaries. Menstruation is increased and prolonged (menorrhagia). The patient becomes anemic and weak.

Treatment.—Rest in bed prior to or during the menstrual period. If the flow is excessive, the patient should be given, for a few days preceding the flow, a capsule containing ergotin, grs. ij, or 30 drops of the fluid extract of ergot three or four times a day. This should be continued until the flow ceases. Potassium bromid, grs. xv to xx, or potassium chlorate, grs. v, may be given twice daily during the menstrual intervals. Tonics, such as strychnin, quinin, arsenic, etc., are indicated. When over-study is the cause,

the patient should be taken from school and an outdoor life, preferably in the country, encouraged. The bowels should be regulated, and a generous diet of plain, wholesome food allowed. Candies and pastries must be excluded. A morning sponge bath followed by friction with coarse towel will be found useful.

OOPHORITIS.

Definition.—An inflammation of the tissues composing the stroma of the ovary.

Varieties.—Various divisions, such as parenchymatous, follicular, interstitial, hyperplastic, atrophic, blennorrhagic, or cystic have been described. Clinically, inflammation of the ovaries may be divided into—

1. Acute oophoritis.
2. Chronic oophoritis.

ACUTE OOPHORITIS.

Causes.—

1. Sepsis following abortion or parturition.
2. Gonorrhea.
3. Endometritis.
4. Salpingitis.
5. Disturbances of menstruation.
6. Exanthemata.
7. Arsenical or phosphorous poisoning.
8. Tuberculosis.

Pathology.—The inflammatory process may be divided into four stages :—

1. Congestion with increased weight, the organ becoming rounder.
2. Great and continued increase in size, combined with softening and an infiltration of the organ with yellow- or violet-colored serum, and slight effusion of blood.
3. Suppuration, either a general infiltration or local collections of pus.
4. A gray softening and disorganization.

In perioophoritis, the capsule of the ovary usually becomes thickened and the whole organ bound down by perimetric adhesions.

Termination.—Acute inflammation of the ovary may terminate in resolution or may progress to the formation and rupture of an abscess, followed by rapidly fatal peritonitis, or if this does not occur, the disease may become chronic.

Symptoms.—Acute, severe lancinating pain over the inguinal region in which the affected ovary lies; this pain may radiate to the back and down the thighs. Extreme tenderness on pressure. Elevations of temperature occur associated with frequent chills and rapid pulse. The functions of micturition and defecation may be disturbed.

Treatment.—Absolute rest in bed. An ice-bag should be applied over the affected ovary, or hot fomentations, if the latter can be better borne. Leeches may be applied to the perineum. Opium should be given by mouth or rectum, or morphia used hypodermatically. Tincture of aconite in doses of one or two drops every hour may be given. In the beginning, free purgation by the use of salines is of great service. Where ovarian abscess forms, the sac should be evacuated after celiotomy has been done.

CHRONIC OOPHORITIS.

Causes.—

1. Continuance of the acute form.
2. Excessive or violent sexual intercourse.
3. Masturbation.
4. Suppressed menstruation.
5. Operations upon the cervix.

Pathology.—

1. The ovarian capsule thickens.
2. Extensive peritoneal adhesions form, due to the effusion and organization of lymph.
3. Small cysts (cystic ovary) form throughout the ovary, caused by the enlargement and retention of the follicles. These cysts vary from the size of a pin's head to that of a pea.

Symptoms.—A constant dragging pain, increased before menstruation, particularly on motion, riding or making a misstep. The pain is greatest over the affected ovary, but radiates to the

lumbar region, along the spine, down the thighs, and frequently in one or both mammary glands. Headache is an almost constant symptom. Painful micturition, defecation, and sexual intercourse usually appear also as symptoms. The menstruation is increased, amounting to menorrhagia. Hysteria or hysterioepilepsy is not uncommon. When both ovaries are diseased sterility occurs.

Physical Signs.—Examination will frequently show the uterus displaced, anteriorly, laterally, or posteriorly. A degree of endometritis may be present. A soft, round, very sensitive tumor, the size of a walnut, will be found in Douglas's culdesac. Rectal examination will often aid greatly in the diagnosis. When the degree of sensitiveness is very great, an anesthetic may be necessary.

Diagnosis.—Chronic inflammation of the ovary with adhesions may be confounded with: (*a*) fecal masses in the rectum; (*b*) a fibroid attached to the side of the uterus; (*c*) salpingitis; (*d*) exudation into the folds of the broad ligament.

(A)

FECAL MASSES IN THE RECTUM.

1. Is elongated, following the course of the rectum.
2. Is doughy and can be easily indented by pressure.
3. Not sensitive.
4. Disappears after free use of cathartics.
5. No displacement of the uterus.

INFLAMED OVARY.

1. Is round, the size of an almond or walnut.
2. Is hard and cannot be indented by pressure.
3. Very sensitive.
4. Does not disappear after purgation.
5. Uterus frequently displaced.

(B)

FIBROID SPRINGING FROM THE LATERAL WALL OF THE UTERUS.

1. Hemorrhage more constant, both menorrhagia and metrorrhagia.
2. Not sensitive to pressure.
3. Is harder on pressure.
4. Is intimately connected with the uterus and moves with it.

INFLAMED OVARY.

1. Menorrhagia only is present.
2. Very sensitive to pressure.
3. Is softer.
4. Not connected with the uterus, except by adhesions.

(C)	
SALPINGITIS.	INFLAMED OVARY.
1. Tumor is sausage-shaped and is more at the side of the uterus.	1. Tumor is globular and generally in Douglas's culdesac.
2. Tumor is fluctuating.	2. No fluctuation.
3. The ovary on palpation may be found separate from the enlarged tube.	3. Cannot be felt on palpation.

(D)	
EXUDATION IN THE BROAD LIGAMENT.	INFLAMED OVARY.
1. Uterus is fixed.	1. Uterus less fixed.
2. Sensitiveness less.	2. Acute pain on pressure.
3. Exudation is less circumscribed, giving the feel as if the uterus was set in glue.	3. Enlarged ovary can be more plainly outlined.
4. Is closer to vaginal vault.	4. Is not so close to vaginal vault.

Treatment.—Rest in bed, particularly during the menstrual periods. Abstinence from sexual intercourse. Copious vaginal injections of hot water twice daily are of service in reducing congestion, and to farther aid in this object, the cervix and vaginal vault should be painted with iodin twice or thrice a week.

Leeches may be applied to the abdomen over the affected ovary or to the cervix, if pain is great. Blisters over the ovaries or mercurial inunctions frequently do good. Internally, the administration of iodid or chlorate of potassium or the bromids are of service. These may be given alone or in combination with bitter tonics. The “American Text-book of Gynecology” recommends the following:—

R. Auri et sodii chloridi, gr. $\frac{1}{20}$
 Extractum cannabis indicæ, gr. ss.
 Given in a capsule, one to be taken three times a day.

Ichthyol, either by inunction over the abdomen or by the mouth or vaginal suppository, is highly recommended.

Vaginal massage should be practiced to overcome fixation of the ovaries. The tincture of pulsatilla may be given in ten-drop doses, for the pain. It is best administered three or four times

daily for some days before the pain begins, and continued until the menstrual flow is well established. Mild currents of galvanism not exceeding 20 M. A. are recommended, the positive electrode with the metal ball covered with wet absorbent cotton being introduced into the vagina and the negative electrode placed on the abdomen over the affected ovary. The application should not exceed fifteen or twenty minutes three or four times a week. When all other means of relief have failed, the diseased ovaries should be removed.

TUMORS OF THE OVARY.

Tumors of the ovary may be classified as follows:—

- | | | | | | | | | | | | | | |
|--|--|--|--|---------------------------|---|--|--|-----------------------------|--|----------------|--|-----------------------------|--|
| (A) Solid tumors. | { <ol style="list-style-type: none"> 1. Fibromata. 2. Myomata. 3. Carcinomata 4. Sarcomata. | | | | | | | | | | | | |
| (B) Cystic tumors. | <table border="0"> <tr> <td>Small
cysts.</td> <td> { <ol style="list-style-type: none"> 1. Follicular. 2. Cysts of corpus luteum. 3. Tuboovarian cysts. 4. Small residual cysts of the hydatid of Morgagni or parovarium. </td> </tr> <tr> <td>Large
cysts.</td> <td> <table border="0"> <tr> <td> 1. Glandular proliferous or ovarian adenomata. </td> <td> { <ol style="list-style-type: none"> Multilocular. Unilocular. Areolar. </td> </tr> <tr> <td>2. Papillary proliferous.</td> <td></td> </tr> <tr> <td>3. Parovarian.</td> <td> { <ol style="list-style-type: none"> Hyaline. Papillary. Dermoid. </td> </tr> <tr> <td>4. Simple or mixed dermoid.</td> <td></td> </tr> </table> </td> </tr> </table> | Small
cysts. | { <ol style="list-style-type: none"> 1. Follicular. 2. Cysts of corpus luteum. 3. Tuboovarian cysts. 4. Small residual cysts of the hydatid of Morgagni or parovarium. | Large
cysts. | <table border="0"> <tr> <td> 1. Glandular proliferous or ovarian adenomata. </td> <td> { <ol style="list-style-type: none"> Multilocular. Unilocular. Areolar. </td> </tr> <tr> <td>2. Papillary proliferous.</td> <td></td> </tr> <tr> <td>3. Parovarian.</td> <td> { <ol style="list-style-type: none"> Hyaline. Papillary. Dermoid. </td> </tr> <tr> <td>4. Simple or mixed dermoid.</td> <td></td> </tr> </table> | 1. Glandular proliferous or ovarian adenomata. | { <ol style="list-style-type: none"> Multilocular. Unilocular. Areolar. | 2. Papillary proliferous. | | 3. Parovarian. | { <ol style="list-style-type: none"> Hyaline. Papillary. Dermoid. | 4. Simple or mixed dermoid. | |
| Small
cysts. | { <ol style="list-style-type: none"> 1. Follicular. 2. Cysts of corpus luteum. 3. Tuboovarian cysts. 4. Small residual cysts of the hydatid of Morgagni or parovarium. | | | | | | | | | | | | |
| Large
cysts. | <table border="0"> <tr> <td> 1. Glandular proliferous or ovarian adenomata. </td> <td> { <ol style="list-style-type: none"> Multilocular. Unilocular. Areolar. </td> </tr> <tr> <td>2. Papillary proliferous.</td> <td></td> </tr> <tr> <td>3. Parovarian.</td> <td> { <ol style="list-style-type: none"> Hyaline. Papillary. Dermoid. </td> </tr> <tr> <td>4. Simple or mixed dermoid.</td> <td></td> </tr> </table> | 1. Glandular proliferous or ovarian adenomata. | { <ol style="list-style-type: none"> Multilocular. Unilocular. Areolar. | 2. Papillary proliferous. | | 3. Parovarian. | { <ol style="list-style-type: none"> Hyaline. Papillary. Dermoid. | 4. Simple or mixed dermoid. | | | | | |
| 1. Glandular proliferous or ovarian adenomata. | { <ol style="list-style-type: none"> Multilocular. Unilocular. Areolar. | | | | | | | | | | | | |
| 2. Papillary proliferous. | | | | | | | | | | | | | |
| 3. Parovarian. | { <ol style="list-style-type: none"> Hyaline. Papillary. Dermoid. | | | | | | | | | | | | |
| 4. Simple or mixed dermoid. | | | | | | | | | | | | | |

(A) SOLID TUMORS OF THE OVARY

Comprise only about five per cent. of operative cases of neoplasms of that organ.

I. FIBROMATA.

Pathology.—Fibrous tumors of the ovary consist rather in a fibroid degeneration of the whole gland, than a circumscribed

tumor. The ovary undergoes uniform hypertrophy; its shape and relations are not altered. They may occur in a corpus luteum which has undergone fibroid degeneration; when in the latter situation, they vary from the size of a split pea to that of a hen's egg.

Ovarian fibromata may undergo calcification, or myxomatous, or sarcomatous degeneration.

The symptoms are practically the same as those of myomata.

2. MYOMATA.

These are composed of unstriped muscular fiber; occasionally traces of fibrous tissue may also be found. Both fibromata and myomata are rare, although the latter is rather more common than the former.

Symptoms.—Examination will show a hard oval tumor on either side or posterior to the uterus, but not attached directly to it. Pain is not a prominent symptom. Ascites is generally present, and may be of considerable amount. Where malignant degeneration occurs there appears—

1. Degeneration in health.
2. Lancinating pain in the region of the diseased ovary.
3. Ascites and edema of the feet and legs. As a cause of the latter symptom, the absence of cardiac, hepatic, and renal disease must be established.

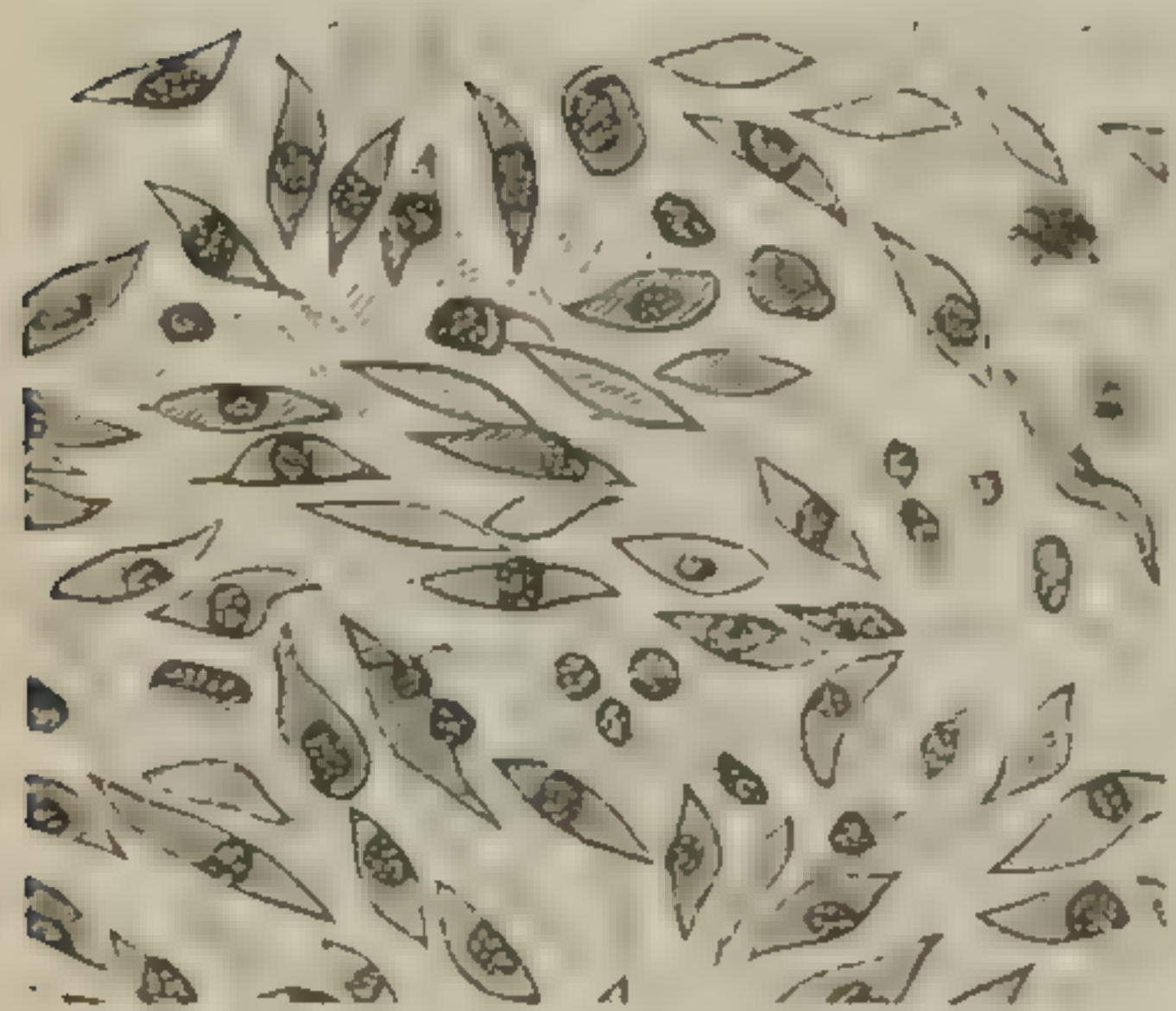


FIG. 143.—SPINDLE-CELLED SARCOMA OF THE OVARY.

3. CARCINOMATA.

Primary cancer of the ovary is rare. It is usually secondary to the cancerous condition in other organs (the uterus or breast) or to ovarian adenoma. The scirrhus or medullary forms are those most frequently found. The disease may originate in a Graafian follicle, a corpus luteum, or in the ovarian stroma. Both ovaries are affected in about 50 per cent. of the total number of cases.

4. SARCOMATA.

Rare. May appear as the round-celled or spindle-celled sarcoma, the latter being the more frequent. When present *both*

ovaries are generally involved. It may be confounded with fibroid tumors of the ovary, but in the latter only one ovary is enlarged. Sarcomata of the ovary are rapid in growth. They are usually of medium size, but may grow to be very large.

Treatment of Solid Tumors of the Ovary.—Removal in all cases.

(B) CYSTIC TUMORS OF THE OVARY.

I. SMALL CYSTS.

1. FOLLICULAR CYSTS.

These are formed from distended and unruptured Graafian follicles. They contain a serous fluid with a specific gravity of 1005 and upward. They vary in size from that of a split pea to that of a man's fist.

2. CYSTS OF THE CORPUS LUTEUM

May vary in size from that of a walnut to an apple. The tissue of the true corpus luteum will be found on examination with the microscope.

3. TUBOOVARIAN CYSTS

May be produced by the rupture of a small cyst or dilated follicle into the Fallopian tube, when the opening of the latter is bound to the ovary by adhesions, thus forming one cyst. When the Fallopian tube remains permeable, and the fluid contents of the cyst are discharged through the uterus, the condition is known as *profluent ovarian hydrops*.

4. CYST OF THE HYDATID OF MORGAGNI

Is a small cystic body varying from the size of a pea to that of a cherry. It is attached to the fimbriated extremity of the Fallopian tube by a thin pedicle. It marks the remains of the canal of Müller.

5. CYSTS OF THE PAROVARIIUM OR ORGAN OF ROSENMÜLLER.

These may originate either in the vertical or horizontal tubes of the parovarium and may later develop into papillary cysts or those having fluid contents.

Parovarian cysts may be (a) *pedunculated*, taking their origin from the tubules of Kobelt; these cysts usually remain small.

(b) *Sessile*, arising and remaining between the layers of the

mesosalpinx. The second variety may grow to a large size. Cysts of the parovarium contain a clear fluid of alkaline reaction and a specific gravity of not over 1010.

2. LARGE CYSTS.

1. GLANDULAR AND PAPILLARY PROLIFEROUS CYSTS.

“The term ‘proliferous,’ as applied to cysts, refers to those which are highly organized and abundantly supplied with blood-vessels.”

“The term ‘proligerous’ cysts is also applied to them and indi-



FIG. 144.—OVARIAN TUMOR WEIGHING 140 POUNDS.

cates their faculty of budding and generating new cysts from or within the original growth” (“American Text-book of Gynecology”).

(a) *Multilocular cysts* derive their name from the fact that they are composed of a large number of small cysts of about equal

size enclosed in one cyst wall. As these cysts grow to a large size, the walls of the enclosed smaller ones may undergo degeneration and thus one large cyst cavity is formed. These are known as:—

(b) *Unilocular Cysts*.—It is supposed by many authorities that all *unilocular* cysts are thus formed from the *multilocular*.

The capsule or cyst wall is composed of three layers. The *outer*

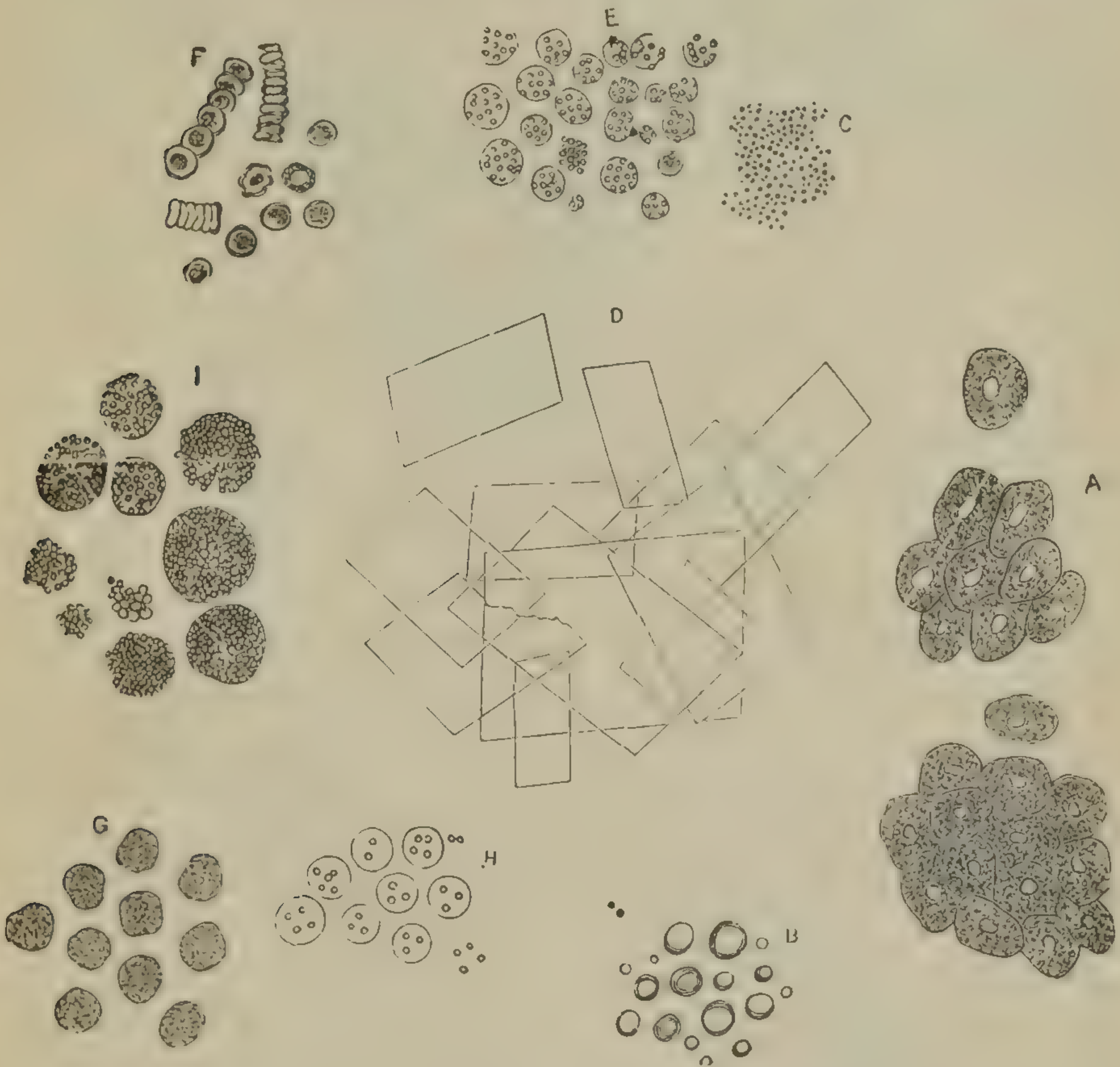


FIG. 145.—MICROSCOPIC EXAMINATION OF FLUID FROM OVARIAN TUMORS.

A. Epithelial cells. B. Oil globules. C. Fine granular matter. D. Crystals of cholesterol. E. Granular cell. F. Blood corpuscles. G, H. Pus-cells. I. Inflammatory globules of Gluge.

layer is frequently lobulated and is made up of dense fibrous tissue. Columnar epithelium, differing from the pavement epithelium of the peritoneum, covers it externally. The middle layer is composed of connective tissue in which the blood supply of the

cyst is distributed. The internal layer is of fibrous tissue lined by low cylindrical cells. Depressions resembling acinus glands are frequently found in sections. The lining membrane may be studded with growths, formed from proliferated stroma and covered with a single layer of endothelium. May simulate *carcinoma*, *myoma*, or *fibrosarcoma*. These cysts may vary in size from a tumor the size of an egg to one weighing upward of one hundred pounds.

The contents of ovarian cysts vary very much, indeed, may be very unlike in different cysts in the same tumor. The color may be yellow, greenish, or dark brown, and the consistency viscid, gelatinous, or thin. As a rule the fluid is thicker in the smaller cysts. The specific gravity of the fluid is always *above* 1010.

The cystic fluid contains various albuminous substances, decomposed blood, and granular cells and oil globules. Cholesterin crystals and rice-shaped bodies are occasionally found.

The pedicle may be composed of the entire broad ligament or folds of the peritoneum, either alone or with an elongated and hypertrophied Fallopian tube and ovarian ligament.

2. PAPILLARY CYSTS.

These originate from the paroophoron in the broad ligament and occasionally in the parovarium. They burrow beneath the layers of the mesosalpinx, and when they attain a large size separate the layers of the broad ligament. They are usually bilateral, do not grow as rapidly or attain as large a size as multilocular cysts, and produce no effect on the shape of the ovary unless very large. They are filled with a clear fluid and large numbers of warty growths, the latter forming masses which frequently distend the cyst wall until rupture occurs, when the contents of the cyst are poured out over the peritoneum, infecting the omentum and any or all of the abdominal viscera.

Symptoms of pressure and ascites usually appear early.

3. DERMOID CYSTS.

The origin of the dermoids is obscure. According to the theory of impaction, certain portions of the blastodermic structure of the embryo become, during intrauterine life, impacted by pressure within certain tissues and later develop. These cysts occur at all

periods of life and contain large and numerous sebaceous or sweat glands, hair, bone, unstriated muscular fiber, and a substance re-

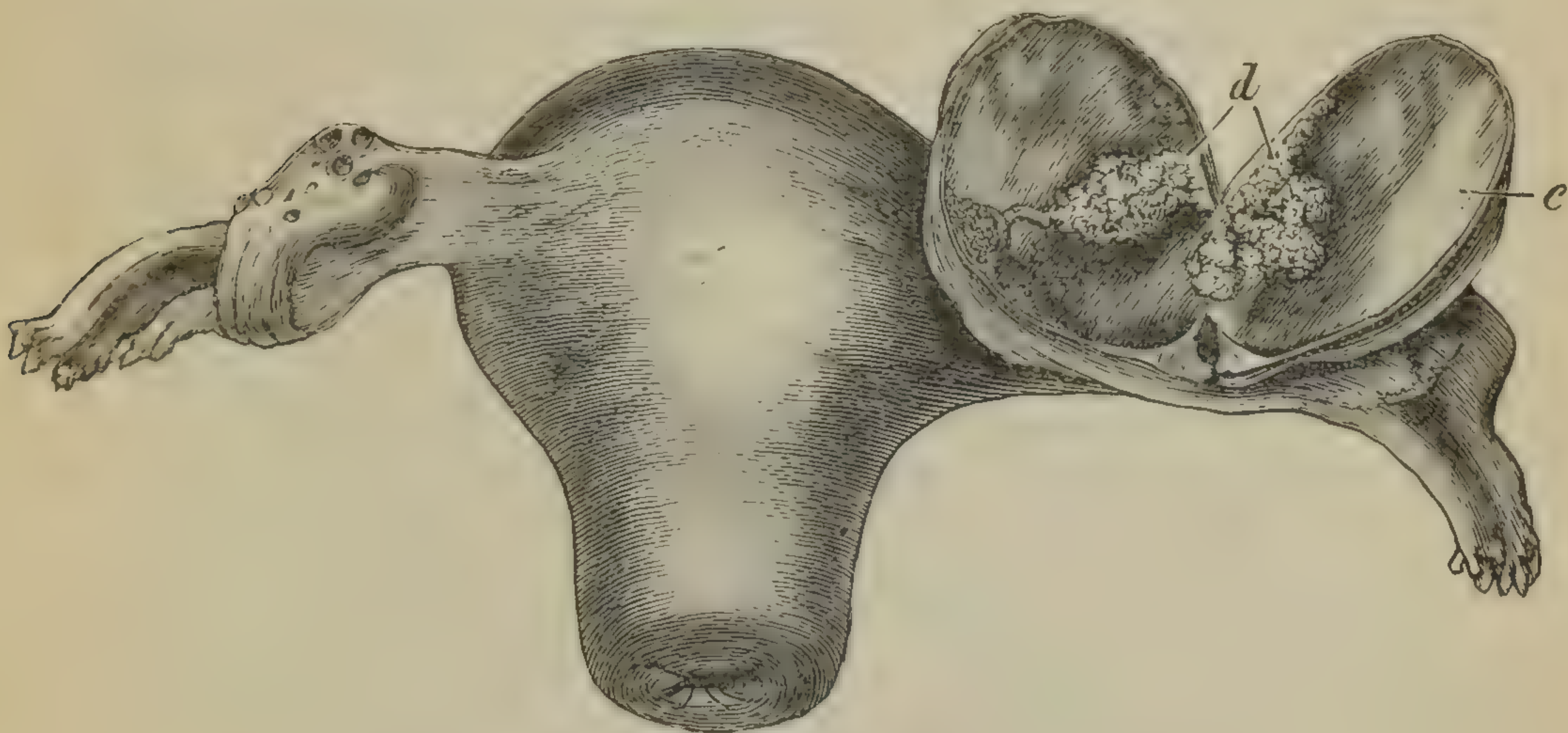


FIG. 146.—PAPILLARY CYSTOMA OF RIGHT OVARY.
c. Cystoma. *d.* Its inner surface, showing papillary proliferation.

sembling brain matter. Hair is very commonly found and may attain to a considerable length. As a rule, it is not the same color

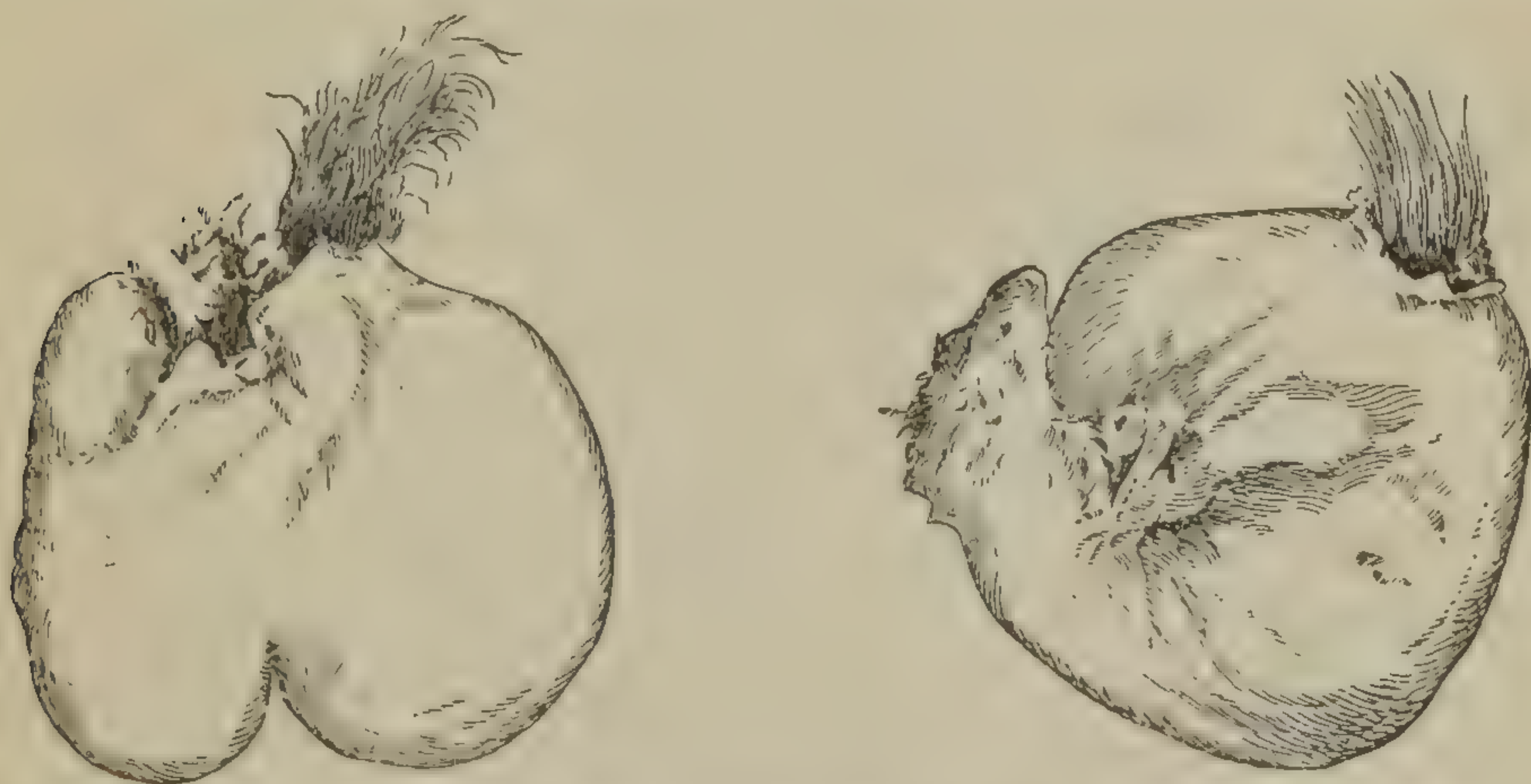


FIG. 147.—DOUBLE DERMOID CYSTS REMOVED DURING PREGNANCY. (*Mundé.*)

as that on the external parts. A putty-like material usually fills these cysts and is composed of a mixture of epithelial debris, oil,

cholesterin, and sebaceous matter. Structures resembling mammæ may also occasionally be found. Nervous tissue has never been demonstrated. Dermoid cysts may rupture, causing infection, with general peritonitis; or by their mechanical irritation they may cause suppuration and abscess.

Sequelæ.—

1. *Ovarian* cysts may undergo calcification, fatty degeneration, or atheromatous changes.

2. *Rupture* of the cyst may occur suddenly (acute rupture), or in a form of slow leakage of the contents of the cyst.

The *predisposing causes* of rupture are thinning of the cyst wall from distention or fatty degeneration; the *immediate cause* may be coughing, labor pains, blows, falls, or jars. Except in cases of dermoid or papillary cysts, peritonitis is not apt to occur.

3. *Torsion of the Pedicle*.—Twisting of the pedicle of ovarian cysts may occur suddenly (acute torsion) or slowly (chronic torsion). It occurs in about ten per cent. of ovarian and parovarian tumors.

Various causes, such as distention and evacuation of the bladder, passage of feces, blows, falls, pregnancy, etc., have been ascribed.

The effects are hemorrhage into the cyst, thrombosis or passive congestion, occasionally necrosis, inflammation of the cyst wall, with the formation of adhesions between the tumor and neighboring organs. The tumor may derive nourishment through these adhesions after the circulation through the pedicle is cut off. This is known as *transplantation of the cyst*.

4. *Inflammation and suppuration*, caused by infection from the Fallopian tube, intestinal tract, the urinary bladder, or by the admission of air in tapping, may occur. The cyst may rupture into the rectum, bladder, vagina, into the peritoneal cavity, or through the abdominal wall. When rupture into the bladder occurs, cystitis usually follows, or in cases of a dermoid cyst, the pieces of bone, etc., may form a nucleus for a vesical calculus.

5. *Hemorrhage* into the cavity of the cyst may occur spontaneously from torsion of the pedicle, tapping, etc. The hemorrhage may be profuse enough to cause danger to life.

6. *Renal degeneration* may occur from continual pressure on the

ureters by the tumor, producing hydronephrosis and later chronic disease of the kidneys.

7. *Diseases of the heart, liver, and lungs.*

Causes.—The immediate cause of ovarian cysts is very obscure ; oophoritis, sudden arrest of menstruation, excessive coition, blows, and injuries have been given.

As predisposing causes, chlorosis, scrofulous diathesis, disorders of menstruation, and general depreciation in health have been named. The tumors may be found at any age from fetal life to advanced old age, but are most common during the period of sexual activity, say between the twentieth and fortieth years. They are most frequent in virginal or sterile women.

Symptoms.—*None pathognomonic.*—A rapidly growing, non-sensitive tumor on either side should cause suspicion of ovarian growth. Later symptoms of weight in the pelvis, pain on defecation, vesical tenesmus, and constipation appear. Dysmenorrhea or profuse menorrhagia are not uncommon ; the latter symptom occurs particularly in broad ligament tumors. As the size of the tumor increases, pressure symptoms appear ; there will be edema of lower extremities and labia, ascites, and extreme emaciation, the features assuming the peculiarly pinched expression known as *facies ovariana*.

Pigmentation of the linea alba, mammary areolæ, and pain in the breasts may present themselves and simulate pregnancy. Violent attacks of abdominal pain, due probably to localized peritonitis and occasional rises of temperature, mark the later stages.

From pressure on the diaphragm and digestive organs, symptoms of interference with respiration and nutrition appear. The urine may contain albumin.

Inflammation and suppuration of the cyst are marked either by symptoms of acute peritoneal inflammation or chronic septicemia.

Where acute torsion has occurred, violent, sudden pain in the abdomen, vomiting, and collapse may occur.

Rupture of the cyst may be followed by no other symptoms than free diuresis, the abdomen at the same time becoming flattened. Most common in unilocular cysts. In papillary and

dermoid cysts, rupture is apt to be followed by peritonitis, or general infection by the papillary growths.

Physical Signs.—

Inspection.—The abdomen will be seen to be enlarged, the swelling being greatest in one or the other flank where the tumor is of moderate size, or generally swollen when the tumor is large. In nearly every case, however, the enlargement will be somewhat unilateral. The brownish discoloration of the skin, and enlargement of the superficial veins, may be present.

Palpation.—The tumor gives a feeling of hardness and resistance, but causes little pain. In multilocular cysts, the irregular nodules may be felt through the abdominal walls. Unilocular cysts are generally smooth, fluctuation may be produced by placing the hand on one side of the abdomen, and tapping the cyst lightly on the opposite side. In multilocular cysts, the fluctuation wave is much shorter, and can only be found by placing the hand on different parts of the abdomen. The distinctness of the wave will depend on the contents of the cyst, being more distinct when the tumor contains thin fluid, and less clear when mucous or colloid material is present. Efforts should be made to elicit the fluctuation wave from each side of the abdomen separately.

Percussion.—A clear or tympanitic percussion note is present over the loins, with dullness over the entire area of the tumor; this note is not changed on altering the position of the patient, as turning her on one or the other side.

Bimanual Examination.—A tense fluctuating tumor can be outlined between the two hands. This tumor is not connected with the uterus, which is movable, and generally displaced.

Diagnosis.—

Small ovarian cysts lying in the pelvis may be confounded with—

1. Extrauterine pregnancy.
2. Distended Fallopian tube.
3. Inflammatory exudation into the broad ligament.
4. Peritonitic exudation.

Large cysts occupying the greater part of the abdominal cavity may be mistaken for—

1. Ascites.
2. Pregnancy.

3. Fibroid tumors of the uterus.
4. Fibrocysts of the uterus.
5. Fat in the abdominal wall.
6. Hematometra.
7. Phantom tumors.

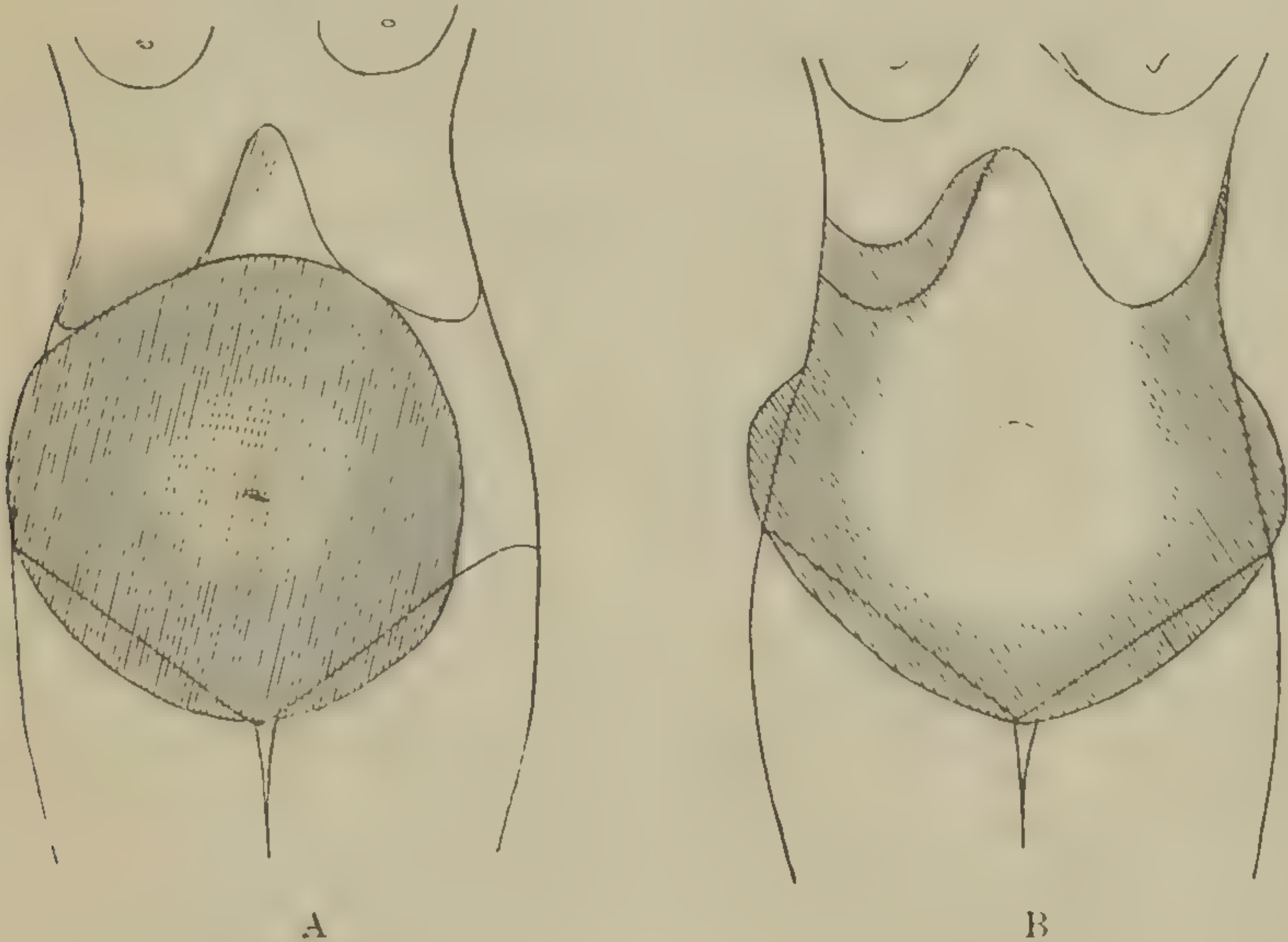


FIG. 148.—THE SHADED PORTION SHOWS THE AREA OF DULLNESS.
A. Ascites. B. Ovarian tumor.

EXTRAUTERINE (TUBAL) PREGNANCY.

1. Rapid and regular growth.
2. Amenorrhea, followed by menorrhagia, with discharge of pieces of decidua.
3. General symptoms of pregnancy present, changes in color of vagina, etc.
4. Enlargement of the uterus.
5. Attacks of pain increasing in severity, finally culminating in a very severe attack, followed by shock and symptoms of internal hemorrhage.

SMALL OVARIAN CYST.

1. Slower growth.
2. Menstruation not altered except occasionally in broad ligament cysts.
3. Symptoms of pregnancy absent.
4. No enlargement of the uterus.
5. In small cysts, no attacks of pain except from pressure.

DISTENDED FALLOPIAN TUBE.

1. The tumor is more elongated.
2. Is intimately connected with the uterus, which is more or less fixed.
3. Tumor is sensitive to pressure.
4. History of acute inflammation, and considerable pain.

SMALL OVARIAN CYST.

1. Tumor is round.
2. Is not connected with the uterus except by the tube, which is not increased in size.
3. Tumor nonsensitive.
4. No history of acute inflammation and little if any pain.

INFLAMMATORY EXUDATION INTO THE BROAD LIGAMENT.

1. History of inflammation following miscarriage, parturition, or operation.

SMALL OVARIAN CYST.

1. No such history.

PERITONITIC EXUDATE.

1. The tumor is sensitive to pressure, is fixed, and is generally found in Douglas's culdesac.
2. The uterus is fixed and feels as if set in some hard substance.
3. History of acute inflammation.

SMALL OVARIAN CYST.

1. The tumor is not sensitive, is somewhat mobile, and in small cysts is lateral.
2. The uterus is freely movable.
3. No history of acute inflammation.

ASCITES.

1. Swelling bilateral, and more diffuse.
2. Percussion gives a tympanitic note *in front and above the tumor*, with *dullness* over the flanks.
3. Percussion note varies by placing patient in different positions.
4. Abdomen flattens when patient lies down on her back.

LARGE OVARIAN CYST.

1. Swelling is central or unilateral, and is circumscribed.
2. Percussion gives dullness over the tumor, and a clear or tympanitic note at the flanks and above. (Coronal resonance.)
3. Little or no variation when position of patient is changed.
4. Abdomen always prominent.

NOTE.—Ovarian cysts communicating with the intestine, or which have undergone suppuration, sometimes contain gas, and

may give a tympanitic note on percussion. When the cyst wall is very tense, a tympanitic note may be transmitted to the surrounding intestines. When such a condition is suspected, more information can be obtained by percussing lightly.

PREGNANCY.

1. The tumor is more symmetrical, and is central.
2. Subjective signs of pregnancy present.
3. The enlarged uterus can easily be outlined and composes the tumor.
4. Amenorrhea is present.
5. Patient's general health good.
6. Hearing the fetal heart and outlining the fetal parts will settle the diagnosis.

LARGE OVARIAN CYST.

1. Tumor is rather more lateral.
2. Subjective signs of pregnancy absent.
3. The uterus is small, and the tumor is separate from it.
4. Menstruation is unchanged or may be increased.
5. General health of patient bad.
6. Fetal heart sounds are absent, and no fetal parts can be outlined.

UTERINE FIBROID.

1. Tumor is hard, resisting, non-fluctuating, and of slower growth.
2. Tumor is growing from the uterus, and therefore moves with it.
3. Some enlargement of the uterus.
4. Menorrhagia generally present.
5. Uterine canal increased in length.

LARGE OVARIAN CYST.

1. Tumor is fluctuating, softer, and of more rapid growth than fibroid tumors.
2. Tumor not connected directly with the uterus.
3. Uterus not enlarged.
4. Menorrhagia not generally present.
5. No increased length of the uterine canal.

The differentiation between fibrocystic tumors of the uterus and ovarian cysts is very difficult, and in many cases impossible. The discovery of other fibrous tumors of the uterus will aid in the diagnosis.

FAT IN THE ABDOMINAL WALL.

1. Usually occurs after the menopause.
2. Fat may be grasped between the two hands.
3. Deposits of fat in other parts of the body.
4. Does not fluctuate.
5. General health of patient good.

LARGE OVARIAN CYST.

1. Occurs during the period of sexual activity.
2. Can not be grasped in the same manner, but shows the outline of a circumscribed tumor.
3. Patient is increasingly emaciated.
4. Fluctuation may be obtained.
5. General health bad.

PHANTOM TUMOR—SPURIOUS PREGNANCY.

1. General resonance over the abdomen.
2. By distracting the patient's attention the abdomen may be pressed flat.
3. The tumor disappears under anesthesia.

LARGE OVARIAN CYST.

1. Dullness over tumor, and presence of coronal resonance only.
2. Tumor does not disappear, and the abdomen can not be pressed flat.
3. Tumor does not disappear under anesthesia.

HEMATOMETRA.

1. Regular attacks of pain, increased during the time when menstruation ought to appear.
2. Menstruation very scant or absent.
3. Tumor central, and formed by the distended uterus.
4. Tumor decreases in size, somewhat, between the menstrual epochs.
5. Atresia of the vagina or cervix present.

OVARIAN CYST.

1. No pain except from pressure.
2. Menstruation present.
3. Bulk of tumor lateral, and separate from the uterus.
4. Tumor grows continually.
5. Absent.

Treatment of Ovarian Cysts.—Medical treatment is of no avail. The only methods of any use are tapping and removal of the cyst by celiotomy. Tapping is an operation of very limited

usefulness, and is at best only palliative. Its dangers are the causing of hemorrhage, perforation of an intestine, peritonitis, the opening of a papillary cyst, thus allowing the contents to escape and producing general infection of the peritoneal cavity, and localized points of inflammation, causing extensive adhesions. Tapping should never be practiced when the presence of a dermoid cyst is suspected.

Indications for Tapping.—

1. When an ovarian cyst complicates pregnancy, puncture may be performed in order to allow delivery to take place.

2. When urgent pressure symptoms exist, that for any reason cannot be relieved by operation.

3. When operation cannot be performed. In the operation of puncture, great care must be exercised as to antisepsis.

Ovariectomy.—Removal of an ovarian cyst by abdominal incision is indicated in all cases except where some co-existing pathological condition will prove fatal to the patient, notwithstanding the extirpation of the tumor. The room in which the operation is to be done must be prepared according to the directions given in chapter on antiseptics and the preparation of the room. The temperature should be about 75° F. The patient should have been in bed for at least forty-eight hours preceding the operation, she should be free from fever, bronchitis, or other inflammatory conditions. Careful examinations of the urine should have been made. The bowels should be kept open by laxatives or enemata, and the whole body bathed with soap and hot water every night. The antiseptic preparation of the abdomen has been described before. No solid food should be given for six or eight hours before the operation. Milk, on account of its tendency to produce flatulence, should be avoided. Immediately before operation the bladder should be emptied, a catheter being used, if necessary. Ether is generally used as an anesthetic; if, however, renal disease is present, or if bronchial irritation exists, chloroform is preferable.

The *assistants* should consist—

1. Of an anesthetizer.

2. A principal assistant, who should be a physician of some experience; his position is on the right side of the patient opposite the operator.

3. A third assistant is desirable; it should be his duty to prepare the needles, sutures, and operate the Paquelin cautery.

4. A nurse, whose duty is to keep careful count of the sponges used, and serve the operator and his assistants. The sponges should be kept in a basin of sterilized water on a table within easy reach of the first assistant. After use they should be thrown into a second basin of water, from which they are taken by the nurse, washed out, and placed in the first basin. The antiseptic toilet of the operator, assistants, and nurse has previously been described.

Sponges.—Generally marine sponges are preferable for abdominal operations. About half a dozen, two elephant ear and four small ones, should be carefully prepared in the manner before described.

Instruments.—While the number and kinds of instruments used in ovariectomy varies somewhat with the nature and difficulty of the individual operations, the following are those generally necessary: A scalpel, dissection forceps, curved scissors, six hemostats of small size, two pedicle forceps, an ovarian trocar, suture carrier, needle holder, six needles, curved and straight, retractors, and a Paquelin cautery. The instruments, after having been sterilized, should be placed in trays on a table on the right side of the operator and within easy reach. The ligatures and sutures should be of silk, silkworm gut, and catgut. There should also be on hand sulphate of strychnin in tablets of gr. $\frac{1}{30}$ to $\frac{1}{20}$, atropin in doses of gr. $\frac{1}{100}$ to $\frac{1}{80}$, solution of nitroglycerin or nitrate of amyl, Monsel's solution, brandy, aromatic spirits of ammonia, and a clean hypodermatic syringe. A Faradic battery may also be found useful.

The Operation.—An incision about three inches in length is made in the median line of the abdomen, about midway between the umbilicus and the symphysis pubis, and the tissues divided down to the peritoneum. But slight hemorrhage is generally encountered, and what small amount of bleeding there is can be easily controlled by pressure with a hot sponge. When the peritoneum is reached, a small portion of it should be held up and a very small incision made in it so as to avoid injuring the cyst or coils of intestine lying beneath. If the peritoneum is adherent, a finger should be introduced into the opening in it and this enlarged with a pair of scissors. The omentum must not be mistaken for a

layer of preperitoneal fat; in the former, the vessels run vertically and in the latter transversely. As the cyst projects into the wound, it presents a pearly, glistening appearance. Two or three fingers should now be passed around it to determine the presence or absence of adhesions; when these exist they can frequently be separated by pressing the adherent viscera away with a sponge after the cyst has been drawn up through the wound. If adhesions are very dense, they may be separated by scissors or a cautery. Adhesions between the tumor and omentum should be tied off with fine silk before separation.

Tapping the Cyst.—The cyst having been drawn into the incision, an opening is made in it at the upper angle of the abdominal wound by means of a trocar with rubber tube attached. The edges of the wound should be packed with sponges to prevent escape of the cyst fluid into the abdominal cavity, the side of the abdomen being supported at the same time by an assistant. After evacuation of the cyst, further adhesions are carefully separated and the sac drawn into the wound and examined.

Separation of the Cyst Sac.—This may be accomplished by cauterization or ligation, the latter being preferable, it being the safer procedure. The pedicle is transfixed with a double ligature passed by means of an aneurism needle or a strong curved needle in a holder, the ligature is then cut (making two threads) and each ligature tied separately. The two ends of one thread are tied firmly on the outer side of the pedicle and the ends of the second thread tied on the inner side. In the Tait or Staffordshire suture the thread is passed by means of an aneurism needle through the center of the pedicle, in a direction *from* the operator. The needle is then withdrawn. The loop is now brought forward over the tumor, one end of the suture

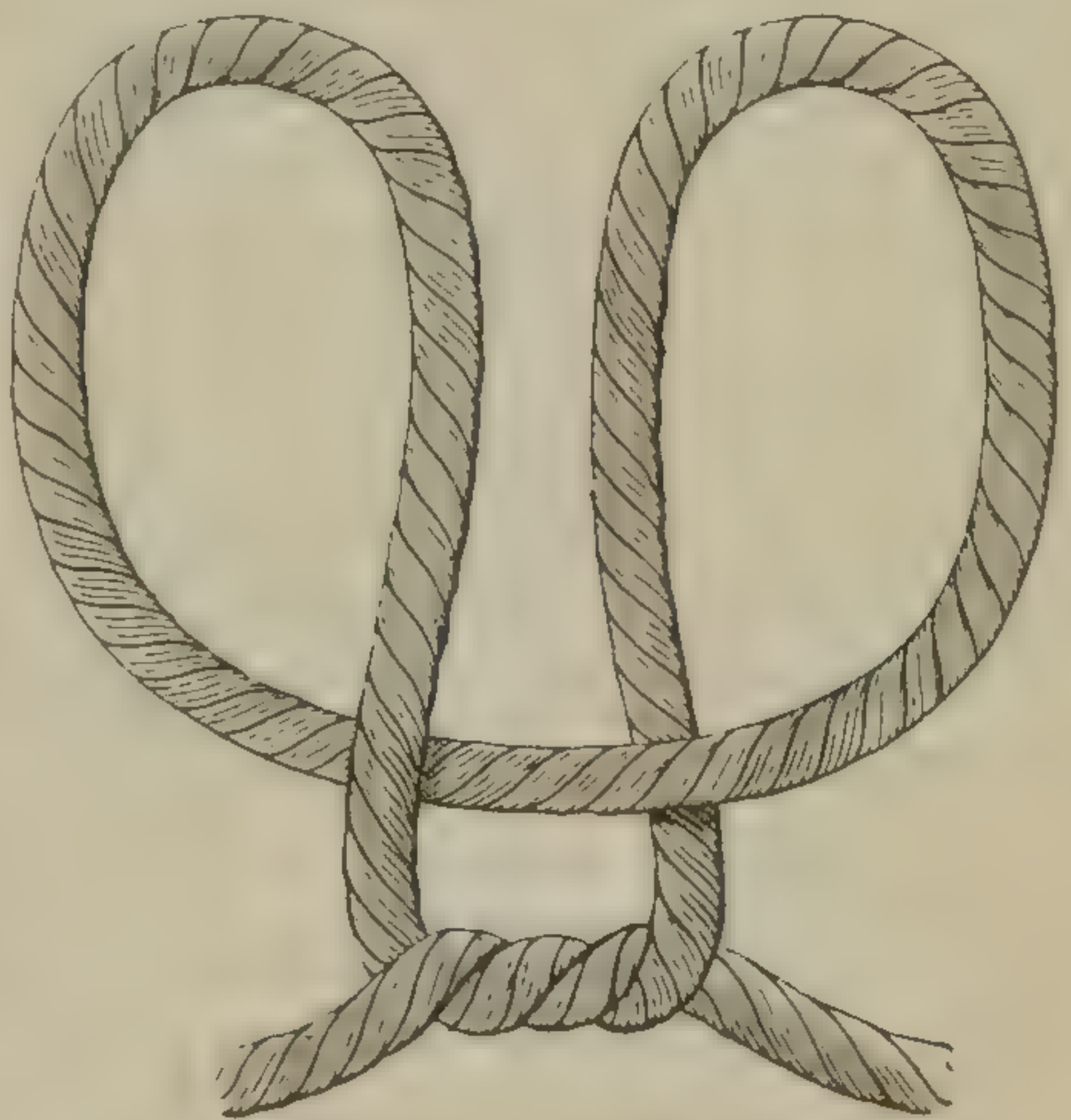


FIG. 149.—STAFFORDSHIRE KNOT.

being carried above and the other below it. The two ends are now tied in a double knot and passed around the pedicle in the groove formed by the loop and tied in a double knot on the other side.

If the pedicle is very broad, other ligatures may be introduced; in tying these, the thread should occupy the groove formed by the first ligature. Great care must be exercised in leaving enough tissue in the stump to prevent the ligatures from slipping. For suture material, either silk or strong catgut may be used; the latter is, however, hard to completely sterilize and is the more apt to slip. The outer border of the distal side of the pedicle is now grasped with two pairs of strong forceps about half an inch from the ligature and the pedicle severed about an inch beyond the groove in which the ligatures lie. Cauterization of the pedicle is done by grasping it with a clamp having ivory plates on one side, the actual cautery being then passed over the tissues in the grasp of the clamp.

The stump may be treated by the *intra-* or *extraperitoneal* methods, the former being the means most commonly employed.

The removal of *dermoid* or *suppurating ovarian cysts* should be accomplished by enlarging the abdominal opening and removing the cyst entire.

Intraligamentous cysts should be enucleated bodily. The opposite ovary should also be removed, if any evidence of cystic disease exists.

Toilet of the Peritoneum.—The stump having been examined and found free from hemorrhage, it may be dropped back into the abdominal cavity, and the latter thoroughly sponged out. If the omentum has been adherent to the cyst and after tearing loose shows signs of oozing, it should be turned up over a towel wrung out of hot water, examined, and all bleeding vessels tied.

The cavity should now be thoroughly irrigated with a 0.6 per cent. solution of common salt, either poured in by means of a pitcher or through a funnel with a rubber tube attached. In the latter case, the tube should have a nozzle long enough to reach into Douglas's culdesac. Irrigation should be continued until the fluid returns clear. The abdominal cavity must now be dried out with a clear sponge, after which a large, flat sponge is placed over

the intestines to keep them out of the way while the sutures are being introduced.

Suturing the Abdominal Wall.—There are several methods of closing the abdominal incision. The simplest one consists in introducing a single row of silkworm gut, carrying each suture through the tissues, including the peritoneum. Care must be taken to draw the aponeurosis well forward over the recti muscles, or the aponeurosis may be closed by a separate row of sutures. This is done to guard against ventral hernia.

External Dressing.—After the wound is closed, the abdomen must be washed with 1 : 2000 solution of bichlorid of mercury and dried with sterilized towels. In both washing and drying, the sponge and towel should be carried from the wound toward the sides of the abdomen. The wound should be dusted with sterilized iodoform, and over this several thicknesses of dry sublimated gauze are laid, and these in turn are covered by several layers of salicylated cotton, covered by borated gauze or a sterilized towel. The whole dressing should be held in place by a bandage or by strips of adhesive plaster to which tapes are attached. The adhesive strips are fastened to the sides of the abdomen and the tapes tied above the dressing. The dressing should be allowed to remain about a week before removal, providing it is not soiled.

Drainage.—In cases of cysts with extensive adhesions, suppurating cysts, or dermoids, it is well to use drainage. The methods preferred are the glass drainage tube, or better the gauze drain of Mikulicz. When the glass tube is used, the opening should be covered with absorbent cotton and a piece of rubber protective, so as to prevent soiling the dressings. Gauze drains should be covered with several layers of dry gauze, the latter being changed as often as soiled.

After Treatment of Ovariectomy.—After operation the patient should be put to bed in a quiet room or ward and kept in a state of absolute rest. She should lie on her back with limbs extended or slightly flexed, with a pillow placed under her knees. No food of any sort and no liquids should be given, except possibly teaspoonful doses of hot water by the mouth, for twelve to twenty-four hours after the operation, until the period of ether vomiting has passed. When thirst is intense, enemas of two or

three ounces of hot water given at intervals of four or five hours will often give relief. When vomiting occurs, the mouth should be washed out with a damp cloth. After vomiting has entirely ceased, nourishment may be given by the mouth. It should consist of beef tea, buttermilk, beef extracts, soups, and broths. Milk, unless predigested, should be excluded, as it constipates and produces considerable flatus. If the patient is feeble, nourishment may be given by enema, and opium may be administered if there is much pain. No solid food should be allowed until a free evacuation of the bowels has taken place. From twelve to twenty-four hours after the operation, the bowels should be opened by calomel in moderate doses and followed by a seidlitz powder, sulphate of magnesia, Rochelle salts, or where the latter cannot be used, compound licorice powder may be substituted. When there is some flatus, an enema of ℥ss turpentine in a pint of hot soapsuds or one of the following should be given :—

Castor oil,	. . . . .	f ℥j
Yolk of one egg,		
Turpentine,	. . . . .	℥j
Water to make	. . . . .	Oj.

Or—

Castor oil,	. . . . .	f ℥j
Glycerin,	. . . . .	f ℥iv
Turpentine,	. . . . .	f ℥ij
Water to make	. . . . .	Oj.

Administer every three or four hours.

At the end of forty-eight hours, if the bowels have been well opened, the temperature nearly normal, and the pulse not exceeding 100 beats per minute, the patient is entering the period of convalescence.

Solid food may gradually be substituted for liquid diet. Soon after the operation, the urine must be drawn off with a catheter and three or four times a day afterward until the patient can void urine herself. If the intestines have been injured during operation, absolute rest is required, opium should be administered and the bowels not opened for four or five days.

The stitches in the abdominal wound should be removed on

the eighth or tenth day and the wound redressed. An abdominal binder or broad belt should be worn for some time afterward.

When a drainage tube has been inserted, the rubber dam should, after a few hours, be unfastened, the cotton covering the mouth of the tube removed, and the fluid drawn out by means of a long-nozzled syringe; great care must be exercised in cleaning the syringe and the hands must be as carefully prepared as for the original operation. Each time the fluid is drawn off, the drainage tube should be twisted to prevent adhesions of lymph from forming. The tube may be removed at from thirty-six to forty-eight hours in many cases.

Septic infection following celiotomy is manifested by constipation, increasing abdominal distention due to flatulence, chills, followed by sweating, dull pains throughout the body, a temperature ranging from 100 to 102 or higher, falling in the morning and rising at night, and a pulse of 110 to 120 and upward. The mind in the later stages is somewhat clouded. When the case progresses toward death, the temperature may rise to 106°, 107°, or over, the pulse to 130 and upward. Vomiting is severe; the material ejected is usually of a dark brown color.

Treatment.—If discovered thirty-six hours after operation, reopen the abdomen and flush out thoroughly. If this cannot be done, reduce temperature by sponging every three or four hours, nourish the patient by liquids given by mouth or rectum, and give whiskey without stint or until the constitutional effects of alcohol are produced. From a pint to a quart of whiskey has been given in twenty-four hours. Strychnin and quinin are valuable adjuncts. For the flatulence, enemata of turpentine with soapsuds are useful. Strychnin may be given by the mouth at the same time.

DISEASES OF THE PERITONEUM AND CELLULAR TISSUE.

PELVIC PERITONITIS.

Synonyms.—Pelvic peritonitis, perimetritis. Pelvic cellulitis is sometimes known as parametritis.

The former is an acute or chronic inflammation of the pelvic peritoneum only, the latter is supposed to affect only the connective tissue of the pelvis. The difference between the two affections is practically a pathological one only, clinically, both pelvic peritoneum and connective tissue are affected together.

Causes.—Inflammation of the uterus, ovaries, or tubes, very commonly the latter, intraperitoneal growths, septic infection from instruments, pessaries or gonorrhea, menstrual congestions, etc., infection during the puerperal state.

Symptoms.—The *acute form* of pelvic inflammation begins with a chill, pain and tenderness over the lower part of the abdomen or on one or the other side of the uterus. The patient lies on her back, with her knees elevated, as this is the most comfortable position for her. The temperature rises to from 101° to 105° and the pulse is 110 to 130 and rather wiry. Some nausea and vomiting are usually present. The bowels are constipated, the abdomen more or less enlarged and tympanitic, and the bladder irritable.

The *chronic form* manifests itself by a dull dragging pain in the pelvis, rectal and vesical irritability, menstrual disturbances, leukorrhea, and pain on sexual intercourse.

Physical Signs.—The examining finger in the vagina will find it hot and dry, pressure made in either culdesac gives great pain, the ovaries, tubes, and uterus seem matted together and give the impression of being set in glue or plaster-of-Paris. In Douglas's culdesac, or on one side of the uterus, a tumor can be felt; this usually is filled with pus and roofed in by adhesions. Palpation of the abdomen causes great pain.

The results of pelvic inflammation are displacements of the uterus, tubes, and ovaries, disturbances of menstruation, sterility, or ectopic pregnancy.

Treatment.—In the acute form, the patient should rest quietly in bed. In the beginning, especially if the temperature is high, ice bags or the ice-water coil should be placed on the lower part of the abdomen ; later turpentine stupes or applications of hot cloths are of use. Opium should be given for pain. The diet should be of liquids. The bowels should be moved by calomel, given in doses of about gr. $\frac{1}{2}$ to 1 until four or five grains have been taken ; this may be advantageously followed by a saturated solution of magnesia sulphate, given in tablespoonful doses and repeated occasionally. Alcohol should be given if fever continues. The general system must be supported by tonics.

If suppuration occurs, the treatment must be supportive in character. When the abscess is fully formed, it should be evacuated, either through the vagina or by abdominal section, the most careful antiseptic precautions being observed.

In the chronic stage vaginal tampons of boroglycerin or ichthyol and glycerin with iodin to the cervix are of service.

DISEASES OF THE BLADDER.

HYPOSPADIAS AND EPISPADIAS.

True hypospadias occurs when the bladder opens directly into the vestibule. It is caused during embryonic life by the urogenital sinus remaining unshortened by the descent of the ducts of Müller, after union has taken place. The urethra remains short and occupies an abnormally high position.

EPISPADIAS.—In this condition there is a defect in the anterior abdominal wall and anterior wall of the bladder ; the symphysis pubis also is cleft. The anterior wall of the urethra is absent and the nymphæ and clitoris are generally split. This malformation is also known by the name of *extroversion* or *extrophy* of the bladder. The bladder may also be *bipartite*, consisting of two cavities, separated partially or completely by a septum.

IRRITABILITY OF THE BLADDER

May arise from purely functional causes, and is frequently found in nervous or hysterical women. May follow abdominal operations or parturition. It is frequently present in patients with pelvic tumors, uterine or ovarian disease.

Symptoms closely simulate those of cystitis. The urine from an "irritable bladder" contains no pus, albumin, or tube casts. Large deposits of amorphous urates or phosphate crystals will be found in microscopical examinations.

Treatment.—Purely constitutional, except after operations, when the bladder should be catheterized at intervals, or when beginning cystitis is suspected irrigations may occasionally be used. The following formulæ are recommended:—

R.	Atropin sulphat.,	gr. ss	
	Aqua destillat.,	℥ iv.	M.
SIG.—Five drops in water before meals.			

R.	Spirit. æther nitrosi,	f ℥ j	
	Liq. potas. citratis, q.s. . . .	f ℥ iv.	M.
Sig.—A dessertspoonful every four hours.			

In distinctly neurotic patients, the bromids frequently are useful, attention at the same time being given to building up the general health by appropriate measures.

CYSTITIS.

Definition.—An inflammation of the mucous membrane lining the bladder. May be acute or chronic.

Causes.—*Acute cystitis* may be caused by exposure to cold, gonorrheal infection or infection by dirty instruments, particularly a catheter, pressure caused by the presenting part of the child during labor, acute inflammation of the pelvic peritoneum or pelvic organs, blows and falls, particularly when the bladder is full of urine, foreign bodies, and the improper use of certain drugs.

Chronic Cystitis may arise from the continuance of the acute form, by pressure of an enlarged uterus, pelvic tumor, etc.

Pathology.—In the *acute form*, no pathological change, except increased redness and congestion, occurs in the mucous membrane ; if, however, the inflammation continues, the bladder walls become thickened and the surface of the mucous membrane covered with shreds of fibrin, pus, and cast-off epithelium. Hemorrhagic spots can sometimes be found marking the detachment of patches of epithelium.

In the chronic form, the fibrous and muscular coats become hypertrophied, thus decreasing the size of the cavity of the bladder ; its rugæ are very prominent and may become actually polypoid.

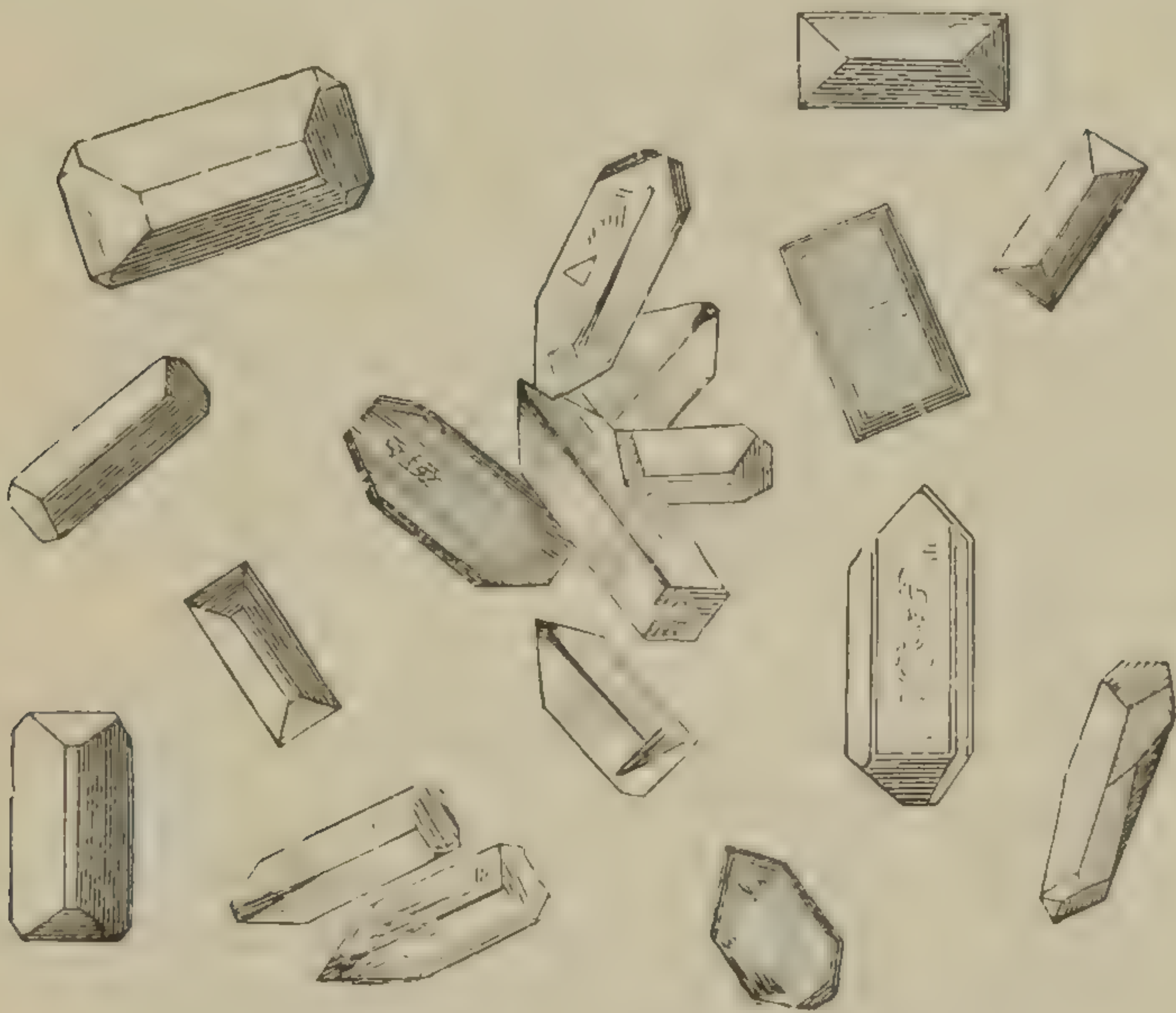


FIG. 150.—TRIPLE-AMMONIUM MAGNESIA PHOSPHATES.

Deposits of phosphatic salts may take place in the ulcerated areas, causing great irritation. Dark ecchymotic patches are seen in the mucous membrane, due to hemorrhage into its substance. In the diphtheritic form, the entire mucous membrane becomes covered with fibrinous material, which is thrown off as shreds or as entire casts of the organ.

The *urine* in cystitis is of high specific gravity, 1020 to 1030, the reaction, particularly in the earlier stages, is acid, but where decomposition has taken place, it is generally intensely alkaline.

The color when first voided may be of a reddish brown or milky. On examination it will be found to contain considerable mucus or pus and large amounts of salts, especially the phosphates. On standing, the urine throws down a reddish-yellow deposit; the presence of bacteria will generally produce turbidity.

The microscope reveals leucocytes in large numbers; red blood-corpuscles and pus-cells may also be present. Large patches of pavement epithelium and numbers of triple phosphate crystals are to be seen.

Symptoms.—The *acute form* begins with a chill, considerable pain over the pubic region, painful urination, the urine becoming high colored; elevations of temperature. These symptoms may decrease or progress, the patient having an increased desire to urinate, especially at night, when it becomes almost constant. The urine is scant in quantity, cloudy, and ammoniacal. There is an almost continuous feeling of pressure over the bladder.

In the *diphtheritic* form, the patient may exhibit symptoms of typhoid condition, with daily rises of temperature and a rapid, feeble pulse. The condition may end in collapse and death. Renal disease with urinary suppression and uremia may appear as complications.

Treatment.—

Prophylactic.—Antiseptic cleanliness in the preparation of the catheter and instruments for vaginal examination.

Curative.—The acute form of cystitis should be treated by rest, hot applications over the lower part of the abdomen, and diluent drinks; those composed of flaxseed tea, mucilage of acacia, and the citrate or acetate of potash being especially useful. Warm baths at a temperature of 103 to 105° should be used to promote free diaphoresis. Opium by suppository or enema may be given where there is much pain. Suppositories of belladonna and iodoform are also recommended for the same purpose. To reduce fever and aid in promoting diaphoresis, the following is useful:—

R.	Tincture aconiti,	. . . . .	f ʒj	
	Spirit. æther. nitrosi,	. . . . .	f ʒ ij	
	Liq. potassii citratis,	. . . . q. s. . . .	f ʒ vj.	M.

SIG.—A dessertspoonful every four hours.

The diet should consist of milk and broths. All alcoholic liquors must be strictly prohibited. The bowels should be kept open by salines and enemata.

When the disease has become chronic, the patient must be kept on a bland diet, without much salt; vegetables, such as asparagus, containing large amounts of earthy salts and all alcoholic liquors should be prohibited. If the urine is highly acid, it should be rendered neutral by the administration of benzoate of sodium; if highly alkaline, it must be rendered less irritating and diluted by such agents as the acetate or citrate of potassium. Any of the formulæ as are given below may be found useful:—

℞. Benzoate sodium or citrate of potash, . . gr. v
 Infusion triticum repens, buchu, or uvæ ursi, ℥ ss. M.

SIG.—Administer the above at one dose every three hours.

℞. Lupulin, ℥j
 Uvæ ursi fol., ℥ ij
 Aq. bullien., Oj. M.

and add when cool,

Tinct. opii camph., ℥ ij
 Sodii bicarb., ℥ ij. M.

SIG.—A teaspoonful four times a day.

℞. Lupulin, ℥j
 Tinct. belladon., f ℥j
 Tinct. opii camph., f ℥ ij
 Sodii bicarb., ℥j
 Inf. buchu q. s. ut. ft., f ℥ vj.

SIG.—A tableespoonful in water three times a day.

Such mineral waters as Vichy, Bethesda and Buffalo Lithia are recommended.

Great relief can often be given by washing out the bladder. This may be done by means of a glass funnel and rubber tube with a clean glass or rubber catheter. The injected fluid may consist of a 50 per cent. solution of boracic acid; weak solutions of permanganate of potassium, bichlorid of mercury in a strength

of 1 to 10,000, creolin ℥j to the quart or silver nitrate 2 to 4 grs. to the ounce. The fluid should be at a temperature of from 100 to 104° F. and should be injected very slowly. When there is great pain after silver nitrate has been used, the bladder should be irrigated with a five per cent. solution of sodium chlorid. Not more than two irrigations of any of the above should be given in one day.

The following has also been recommended :—

R.	Iodoform,	50.0
	Glycerin,	40.0
	Aquæ destillat.,	10.0
	Mucilage acacia,	℥. ss.
to make an emulsion.		

Method of Introducing the Catheter.—Either glass or rubber catheters may be used, the former being the best, as they are kept clean more easily. If of glass, the instrument should be boiled for five minutes and kept in a solution of carbolic acid; rubber catheters should be sterilized in a solution of bichlorid of mercury, 1 to 500. Before introducing the instrument, the external genital organs should be washed with a saturated solution of boracic acid, especial care being taken to cleanse around the urethral orifice. The patient lies on her back with hips elevated on a bed-pan, the labia are separated with the thumb and forefinger of one hand, care being taken not to touch the parts around the orifice of the urethra, and the catheter introduced. The irrigating fluid should be allowed to flow in slowly and in small quantities, and the funnel then depressed so as to allow it to flow out. This should be repeated until the fluid comes out clear. Constant irrigation can be done by means of a return flow catheter. The catheter should always be sterilized after using. About a pint to a quart of fluid may be used during the entire time of each irrigation. The urine should always be drawn off before the bladder is washed out; it is well, however, to leave a small quantity in to prevent the entrance of air when the catheter is introduced. It is sometimes necessary to dilate the urethra, using a small Goodell's

dilator or graduated solid instruments, and inserting a self-retaining catheter, thus allowing the urine to constantly escape. In some cases, when all other means of relief have failed, the operation of *colpocystotomy* must be performed. This consists of making an incision through the vesicovaginal septum and allowing the urine to escape by the vagina; the mucous membranes of the vagina and bladder are united, thus making an artificial vesicovaginal fistula. The bladder should be washed out two or three times daily, and when the inflammation has subsided, the fistula is repaired.

INDEX.

- ABDOMINAL** binder in anteversion, 109
 examinations, anesthetics in, 25
 hysterectomy for uterine fibromata, 177, 184
 operations, general technic, 10
 supporter for retaining uterus in position in retrodisplacement, 125
 tumors causing prolapse, 130
 general diagnosis of, 25
Abdominorectal examination, 34
 diagnostic points obtained by, 34, 35
 uses of, 34
Abscess of vulvo-vaginal gland, 59, 60
Absorbent cotton, 16
Acne of vulva, 64
Acquired atresia of cervical canal, 151
 posterior displacements of uterus, 114, 129
 stenosis of cervical canal, 151, 152
Action of pessary in reposition of retrodisplacement, 125, 126
Acute cystitis, 240, 245
 endometritis, 161-163
 inversion of uterus, 135
 metritis, 167-169
 oophoritis, 213, 214
 prolapse of uterus, 130
 salpingitis, 200-204
Adhesions causing antelexion, 105
 to bowel from retrodisplacement, 115
Adhesive vaginitis, 86-90
Advantages of dilatation by Barnes' bag, 49
 of knee-chest position for retrodisplacement, 119
After-treatment in introduction of dilator, 46, 47
 in repair of vesicovaginal fistulæ, 94
 of abscess of vulvovaginal gland, 60
 of cervical operations, 160
 of colpocystotomy, 245
 of colpohysterectomy, 198
 of curettement in anterior displacements, 110
 of hysterorrhaphy, 124
 of introduction of a pessary, 129
After-treatment of ovariectomy, 235-237
 of total abdominal hysterectomy, 184
 of using a tent, 45
Age as cause of uterine carcinoma, 189
 most susceptible to epithelioma of uterus, 187
 most susceptible to sarcoma, 192
Albert Smith pessary for prolapse, 134
Alexander's operation for prolapse, 134
 for retrodisplacements, 121, 122
Amenorrhea, 141-144
Ampulla of oviduct, 200
Amputation of cervix for anteversion, 112
 of uterine neck as causes of stenosis of cervical canal, 152
Anatomy of ovary, 209-211
 of oviducts, 199, 200
 of perineum, 78, 79
 of uterus, 96-99
 of vagina, 71, 72
Anesthetics in abdominal examinations, 25
Anomalies of uterus, 150, 151
Anteflexion, 102
 of uterus, 101, 103-107
Anterior column of vagina, 71
 displacement of uterus, 102
Anteversion, 102
 of uterus, 107
Antisepsis, 9
 of catheter, 244
Antiseptics, 12, 13
Appearance of wound and introduction of sutures in flap-splitting operation for an incompletely lacerated perineum, 85
Appearances of virgin uterus, 97
Applicator, uterine, 43, 44
Arbor vitæ of cervix, 98
Areolar hyperplasia, 169-171
Arnold sterilizer, 13
Arterial supply of ovary, 210
Arteries of external genitalia, 52, 53
 of uterus, 99
 of vagina, 72
Ascent of uterus, 102
Ascites causing prolapse, 130
Asepsis and antisepsis, 10
Astringent in treatment of metrorrhagia, 144-145

- Atresia of cervical canal, 151-153
 of vagina, 72, 73
 of vagina as cause of mechanical dysmenorrhea, 147
- Auscultation, 24
- Average length of uterus, 96
 thickness of uterus, 96
 width of uterus, 96
- Avulsion for uterine fibromata, 176, 177
- Axis of uterus, 97
- BAER'S** operation for retrodisplacement, 123
- Barnes' bag for cervical dilatation, 48, 49
- Bartholini's glands, or vulvovaginal glands, 52
- Beveling of edges in vesicovaginal fistulæ, 93
- Bichlorid of mercury, 1
- Bilateral laceration of cervix uteri, 155
- Bimanual examination, diagnostic points obtained by, 30-34
 for ovarian cystome, 226
 in ante flexion, 106
 in anteversion, 108, 109
 in diagnosis of retrodisplacement, 116
 in prolapse of uterus, 132
 uses of, 30, 31
 method of examination, 30
 reduction in uterine inversion, 139
 reposition in treatment of retrodisplacement, 118
- Bipartite bladder, 239
- Bladder irritability, 240
- Blood supply of oviducts, 200
- Body of uterus, 96
- Brandt's method of gradual replacement for retrodisplacement, 120
- Braun's colpeurynter for inversion of uterus, 139
 for treatment of prolapse, 133
- Broad ligament of uterus, 100
- Bulbous portion of ovary, 210
- Bulbs of vagina, 52
- CACHEXIA** in uterine carcinoma, 190
 in uterine sarcoma, 193
- Caliber of tube in salpingitis, 201
- Cancer of uterus, 187-192
- Carcinoma of vagina, 90, 91
- Carcinomata of ovary, 218
- Carl Braun's dull douche curette, 50
- Carunculæ myrtiformes, 52
- Catarrhal salpingitis, 200
 vulvitis, 53, 54
- Causes affecting uterus primarily in menorrhagia, 144
 secondarily in metrorrhagia, 144
 of abscess of vulvo-vaginal gland, 59
 of acute cystitis, 240
 endometritis, 161
 metritis, 167
- Causes of acute oophoritis, 213
 of amenorrhea, 141, 142
 of ante flexion, 104
 of anteversion of uterus, 107
 of ascent of uterus, 102
 of atresia of vagina, 72
 of carcinoma of uterus, 189
 of catarrhal vulvitis, 53
 of change in position of uterus, 101
 of chronic catarrhal vulvitis, 54
 cystitis, 240
 endometritis, 164
 metritis, 169
 oophoritis, 214
- of coccygodynia, 67
 of croupous vulvitis, 56
 of cyst of vulvo-vaginal gland, 59
 of death in inversion of uterus, 136
 of diabetic vulvitis, 57
 of diphtheritic vulvitis, 56
 of displacement of uterus, 102
 of fecal fistulæ, 92
 of fibromata of uterus, 172, 173
 of follicular vulvitis, 58
 of gangrene of vulva, 56
 of gonorrheal vulvitis, 54
 of hematocele, 206
 of hematocolpos, 73
 of hernia into labium majus, 60, 61
 of hydrocele of round ligament, 61
 of inversion of uterus, 135
 of irritability of bladder, 240
 of lacerated perineum, 79
 of laceration of cervix uteri, 155
 of mechanical dysmenorrhea, 147
 of membranous dysmenorrhea, 148
 of menorrhagia, 144
 of metrorrhagia, 144
 of noma, 56
 of ovarian congestion, 212
 of ovarian cysts, 225
 of pelvic peritonitis, 238
 of phlegmonous vulvitis, 54, 55
 of posterior displacements of uterus, 114
 of procidentia, 130
 of prolapse of ovary, 211
 of uterus, 130
 of vaginal walls, 74
 of pudendal hematoma, 61
 hernia, 60, 61
 of rectodisplacement of uterus, 112
 of rectovaginal fistulæ, 95
 of salpingitis, 200, 201
 of supravaginal hypertrophy of cervix, 154
 of tuberculosis of oviducts, 205
 of urethral caruncle, 68
 of urethral prolapse, 69
 of urethral stricture, 69
 of urethrocele, 69
 of urethrovaginal fistulæ, 94
 of uterine prolapse, 130
 of uterine sarcoma, 192
 of vaginal prolapse, 74
 of vaginismus, 66, 67

- Causes of vaginitis, 86, 87
 of vesico-uterine fistula, 95
 of vulvar condyloma acuminata, 65
 lata, 65
 eczema, 62
 erysipelas, 65
 erythema, 63
 hemorrhage, 62
 herpes, 64
 scabies, 64
 of vulvovaginal hyperesthesia, 70
- Cervical antelexion, 104
 catarrh causing antelexion, 105
 dilatation, 44-49
 by elastic dilators, 44-49
 by operation, 44-49
 by solid dilators, 44-48
 by strip of gauze, 46
 by tents, 44, 45
 endometritis, 161
 lacerations as cause of uterine carcinoma, 189
- Cervicocorporeal antelexion, 104
- Cervix, digital examination of, 27
 of uterus, 96
- Change in size of uterus at puberty, 96
 during menstruation, 96
 in endometritis, 96
 in old age, 96
 in pregnancy, 96
- Changes in uterine function, 141-150
- Characteristics of adhesive vaginitis, 87
 of emphysematous vaginitis, 87
 of follicular vaginitis, 87
 of granular vaginitis, 87
 of labial epitheliomata, 66
 of ovarian carcinomata, 218
 of pain in membranous dysmenorrhea, 148, 149
 in neuralgic dysmenorrhea, 145
 of papillary ovarian cysts, 222
 of parovarian cysts, 219, 220
 of sarcoma of labia and vulva, 66
 of simple vaginitis, 87
 of urine in cystitis, 241
 of vaginal carcinoma, 90
 of vaginal fibromata, 91
 of vaginal sarcoma, 90
 of vesicular vaginitis, 87
 of vulvar epitheliomata, 66
- Cholesterin in ovarian cysts, 222
- Chronicized catgut ligatures, 15
- Chronic catarrhal vulvitis, 54
 cystitis, 240-245
 endometritis, 163-167
 glandular endometritis, 163
 interstitial endometritis, 163
 inversion as cause of metrorrhagia, 144
 of uterus, 135
 metritis, 169-171
 oophoritis, 214-217
 ovaritis as result of salpingitis, 202
 parenchymatous inflammation of womb, 169-171
 prolapse of uterus, 130
- Cicatricial induration as cause of cervical laceration, 155
- Circumscribed fibrous sarcoma of uterus, 192
- Clamp method for colpohysterectomy, 197
- Clitoris, 51
- Closure of abdominal opening in salpingitis, 201
 of external os to sustain reduction of inversion of uterus, 141
- Coats of uterus, 98
- Coccygodynia, 67
- Celiotomy for salpingitis, 204
- Cold as cause of acute endometritis, 161
 of amenorrhea, 142
 of congestive dysmenorrhea, 146
 of salpingitis, 200
 sponge bath in morning for ovarian congestion, 212
- Colpocoele, 74
- Colpocystotomy for cystitis, 245
- Colpohysterectomy for uterine carcinoma, 194-198
- Combined or bimanual method of examination, 30
- Complete inversion of uterus, 135
 represented by a diagram, 135
 laceration of perineum, 79
 prolapse of uterus, 130
- Complicated inversion of uterus, 135, 136
- Condition indicating a pessary, 111
- Congenital antelexion, 104
 atresia of cervical canal, 151
 atrophy of uterus, 151
 retroflexion of uterus, 112
- Congestion of broad ligaments from retrodisplacements, 115
 of ovaries, 212, 213
- Congestive or inflammatory dysmenorrhea, 146, 147
- Consequences of retrodisplacements, 115
- Constipation in chronic prolapse, 132
 in retrodisplacements, 115
- Constitutional symptoms of congestive dysmenorrhea, 146
- Contents of dermoid ovarian cysts, 222, 223
 of ovarian cysts, 222
- Contraindications for correction of retrodisplacement, 120
 for tapping in ovarian cystoma, 231
 for use of pessary in retrodisplacements, 126
 to radical treatment of cervical laceration, 157
- Corporeal antelexion, 104
 endometritis, 161
- Corpus luteum, 210
- Course of needle with suture in repair of vesicovaginal fistula, 93
- Courty's method for reduction of inversion, 139
- Croupous vulvitis, 56
- Cup repositor for inversion of uterus, 139

- Curative treatment of chronic endometritis, 170, 171
 of cystitis, 242
- Curettement for prolapse, 134
 in treatment of metrorrhagia, 144
- Cutaneous diseases of the vulva, 62-66
- Cutter pessary for prolapse, 134
- Cystic degeneration of fibromata of uterus, 171
 distention of oviducts, 200
 ovarian tumors, 217
 ovaritis as result of salpingitis, 202
 ovary in chronic oophoritis, 214
 salpingitis, 200
 vaginitis, 86, 90
- Cystitis, 240-245
 from uterine prolapse, 132
- Cystocele, 74, 129-134
- Cyst of hydatid of Morgagni, 219
 of vulvovaginal gland, 59
- Cysts of corpus luteum, 219
 of organ of Rosenmüller, 219, 220
 of ovary, 219-232
 of parovarium, 219
- DANGERS** and disadvantages of tapping in ovarian cystoma, 230, 231
 of curette, 50
 of hematocolpos, 73, 74
 of Schücking's operation for retrodisplacement, 125
- Decidua menstrualis, 148, 149
- Defectus uteri, 151
- Degenerations in ovarian cysts, 224
- Denudation of complete perineal rupture, with first two sutures uniting torn ends of sphincter ani in position 84
 in Bischoff's operation for posterior colporrhaphy, 83
 in Emmet's operation for lacerated perineum, 81, 82
 trachelorrhaphy, 158, 159
 in Hegar's operation for posterior colporrhaphy, 82
 in Martin's operation for posterior colporrhaphy, 83
 in Simon's operation for posterior colporrhaphy, 83
 in Winckel's operation for posterior colporrhaphy, 83
- Depression of uterus, 135
- Dermoid cysts of ovary, 222-224
- Deschamp's needles in total abdominal hysterectomy, 182
- Determination of size of pessary, 126
- Development of oviducts, 199
- Diabetic vulvitis, 57
- Diagnosis-general of vaginal tumors, 28
 of abdominal tumors, 25
 of abscess of vulvovaginal gland, 60
 of acute endometritis, 162
 of amenorrhea, 143
 of anteversion, 108
- Diagnosis-general of cervical laceration, 156, 157
 of chronic oophoritis, 215, 216
 of coccygodynia, 67
 of diphtheritic vulvitis, 56
 of croupous vulvitis, 56
 of follicular vulvitis, 58
 of gonorrheal vulvitis, 54
 of hydrocele of round ligament, 61
 of infravaginal hypertrophy of cervix, 154
 of irritability of bladder from cystitis, 240
 of membranous dysmenorrhea, 149
 of ovarian cystoma, 226-230
 of prolapse of uterus, 132
 of pudendal hematoma, 62
 of pudendal hernia, 61
 of retrodisplacements, 115-117
 of salpingitis, 203
 of urethral caruncle, 68
 of urethrocele, 69
 of uterine inversion, 136-138
 of uterine sarcoma, 193
 of vaginal prolapse, 75
 of vaginitis, 88
 of vesicovaginal fistulæ, 92, 93
 of vulva elephantiasis, 65
- Diagnostic characteristics of fibrocysts, 174
 of subserous fibromata, 173
 points in vaginal examination, 25-29
- Diet in after treatment of ovariectomy, 236
 in treatment of chronic cystitis, 243
 of cystitis, 243
- Difference between flap-spitting operation for complete and incomplete laceration of perineum, 85, 86
- Differential diagnosis between appendicitis and right-sided tubal disease, 204
 cervical stenosis and fibrous tumors, 153
 malignant growths, 153
 ovarian cysts, 153
 pregnancy, 153
 early tubal pregnancy and salpingitis, 203
 encephaloid and scirrhus carcinoma of uterus, 189, 190
 epithelioma and encephaloid carcinoma, 189
 and scirrhus carcinoma, 189, 190
 fibroid polypus and partial inversion, 138
 mucous membrane of cervix and uterus, 98
 ovarian cysts and salpingitis, 203
 pelvic peritonitis and pelvic cellulitis, 238
 polypus and inversion, 138

Differential diagnosis between prolapse and inversion, 139
 pyo and hydrosalpinx, 203
 in antelexion, 106, 107
 in retrodisplacements, 116, 117
 of ascites from large cystoma of ovary, 226-228
 of carcinoma of body and uterine sarcoma, 193
 of chronic metritis, 169, 170
 of circumscribed sarcoma and diffuse sarcoma of uterus, 192, 193
 of cystic degeneration of chorion from uterine carcinoma, 191
 of distended Fallopian tube from small cystoma of ovary, 226
 of ectopic gestation from hematocele, 207
 of erosion of cervix with ectropion from uterine carcinoma, 191
 of extrauterine pregnancy from small ovarian cystoma, 226
 of exudation in broad ligament from oophoritis, 216
 of fat in abdominal wall from large ovarian cystoma, 230
 of feces in rectum from chronic oophoritis, 215
 of fibroid of uterus from chronic oophoritis, 215
 of fibroids from hematocele, 208
 of gonorrheal vaginitis, 89
 of hematometra from ovarian cystomata, 230
 of hemorrhagic or villous endometritis and uterine sarcoma, 193
 of hypertrophic elongation of cervix from uterine carcinoma, 191
 of interstitial and submucous fibromata, 173, 174
 of ovarian tumors from uterine fibromata, 174
 of parauterine cellulitic deposits from fibromata, 174
 of pelvic abscess and hematocele, 207, 208
 cellulitis from hematocele, 207, 208
 hematocele from fibromata of uterus, 174
 hematocele and ovarian cysts, 208
 of peritonitic exudate from small ovarian cystoma, 228
 of peritonitis and hematocele, 207, 208
 of phantom tumor from large ovarian cystoma, 230
 of phlegmonous vulvitis and vulvar hematoma, 55
 labial hernia, 55
 displaced ovary, 55

Differential diagnosis of phlegmonous vulvitis and hydrocele of round ligament, 55
 of pregnancy from large ovarian cystoma, 229
 from uterine fibromata, 174
 of prolapse, 132, 133
 of retained placenta from uterine carcinoma, 191
 of retrodisplacement and salpingitis, 204
 from hematocele, 207
 of salpingitis from oophoritis, 216
 of sarcomata and fibroid tumor of ovary, 219
 of sarcoma and retained placenta, 193
 of sloughing fibroid from uterine carcinoma, 191
 polypi and uterine sarcoma, 193
 of small cervical fibroid from uterine carcinoma, 191
 of small cystoma of ovary from inflammatory exudation into broad ligament, 228
 of syphilitic ulceration from uterine carcinoma, 191
 of uterine fibroid from large ovarian cystoma, 229
 inversion, 137, 138
 Difficult and painful defecation in retroflexion, 113
 Diffuse sarcoma of mucous membrane, 192
 Digital eversion of the rectum, 29
 examination, 26
 of the rectum, 30
 indications for, 30
 Dilatation and curettement in anterior displacements, 109-111
 in cervical stenosis, 152
 in treatment of obstructive dysmenorrhea, 148
 of cervix, 44-49
 Diphtheritic vulvitis, 56
 Discharge in uterine sarcoma, 193
 Diseases due to changes in position of uterus, 99
 of bladder, 239-245
 of external genitalia, 53-71
 of general system as cause of metrorrhagia, 144
 of oviducts, 200-209
 of peritoneum, 238, 239
 of tubes and ovaries as cause of metrorrhagia, 144
 of uterus, 99
 of vagina, 72-96
 Displacements of ovaries, 211, 212
 of tubes, 211, 212
 of uterus, 102
 of uterus as cause of congestive dysmenorrhea, 146
 of uterus following cervical laceration, 156

- Divisions of cervix, 96
 of uterus, 96
 Dorsal position, 19
 Dorsosacral position, 20
 Douche curette in anterior displacements, 110, 111
 Drainage, 16, 17
 after ovariectomy, 235
 in colpohysterectomy, 198
 Drains, gauze, 16
 glass, 16
 Mikulicz, 17
 rubber, 16
 Dressings, 14
 in colpohysterectomy, 198
 Drugs in treatment of amenorrhea, 143, 144
 in treatment of chronic oophoritis, 216
 in treatment of neuralgic dysmenorrhea, 145, 146
 Dull douche curette, 49, 50
 Dysmenorrhea, 145-150
 in antelexion, 105
 in retrodisplacements, 115
 in retroflexion of uterus, 113
 Dysmenorrheal membrane, 149
 Dyspareunia in cervical laceration, 156
 Dysuria from uterine prolapse, 132
- ECTOPIC** gestation as cause of metrorrhagia, 144
 pregnancy as result of salpingitis, 202
 Ectropion following cervical laceration, 156
 in uterine prolapse, 131
 Eczema of vulva, 62, 63
 Elastic dilators for cervical dilatation, 44-49
 Electrical treatment for uterine fibromata, 175
 Electricity in treatment of amenorrhea, 143
 in treatment of chronic oophoritis, 217
 Elephantiasis of labia, 65, 66
 of vulva, 65, 66
 Ellinger's cervical dilator, 47
 Emansio mensium, 142
 Emmet's anterior colporrhaphy for prolapse, 134
 method for reduction of inversion, 139
 operation for anterior colporrhaphy, 77, 78
 operation for lacerated perineum, 81, 82
 trachelorrhaphy for cervical laceration, 157-159
 Emphysematous vaginitis, 86, 87
 Encephaloid carcinoma of uterus, 187-192
 Endometritis, 160-167
 as cause of menorrhagia, 144
 dessicans, 148, 149
 from retrodisplacements, 115
 in retroflexion of uterus, 113
- Engorged portal circulation as cause of congestive dysmenorrhea, 146
 Enlargement of uterus in anteversion, 108
 of uterus in uterine sarcoma, 193
 Enterocoele, 75
 Enterovaginal hernia, 75
 Epispadias, 239
 Epithelioma of labia, 66
 of uterus, 187-192
 of vulva, 66
 Ergot in ovarian congestion, 212
 treatment for uterine fibromata, 175
 Erosions in chronic endometritis, 165
 of cervix as cause of cancer of uterus, 189
 in retrodisplacements, 115
 Erysipelas of vulva, 65
 Erythema of vulva, 63
 Examination, preparation for, 19
 table, 19
 Examinations, gynecologic, 18
 Excessive exercise a cause of salpingitis, 201
 Excision of round ligament in Alexander's operation, 122
 Exciting causes of anteversion, 107
 of posterior displacements of uterus, 114
 of uterine prolapse, 130
 of vaginitis, 87
 Exfoliative endometritis, 148, 149, 163
 Extensive laceration of perineum, 79
 Extent of cervical dilatation, 47, 48
 External dressings in ovariectomy, 235
 genitalia, 50-53
 genital organs, inspection of, 23
 laceration of perineum, 79
 Extraperitoneal hematocele, 206
 method of treatment of stump in abdominal hysterectomy, 179-181
 treatment of stump in ovariectomy, 234
 Extrophy of bladder, 239
- FACIES** ovariana, 225
 Factors retaining uterus in position, 99-101
 Fatty degeneration of fibromata of uterus, 171
 Fecal fistula, 92
 impaction as cause of metrorrhagia, 144
 Fergusson's speculum, 39
 Fetid discharge in uterine carcinoma, 190
 Fibroid tumors of uterus, 171-185
 Fibroids causing retrodisplacement of uterus, 114
 Fibromata causing antelexion, 105
 of ovary, 217, 218
 of vagina, 91
 of vulva, 66
 Fibrous polypus of uterus, 172
 uterine polypi, 186
 Fimbriated extremity of oviduct, 200

Fistulæ of genitalia, 91-96
 Flexion of uterus, 103
 Flexions and versions, 103
 of uterus as cause of obstructive dysmenorrhea, 147
 Follicular ovarian cysts, 219
 vaginitis, 86, 87
 vulvitis, 57, 58
 Fossa navicularis, 52
 Fourchette, 52
 Function of perineal body, 78
 of uterus, 96
 Functions of uterine ligaments, 100
 Fundus of uterus, 96

GANGRENE in inversion of uterus, 136
 of vulva or noma, 56

Gärtner's duct, 211

Gastrohysteropexy for retrodisplacements, 123, 124

Gauze-bichlorid, 16
 methods of sterilizing, 16
 sponges, 15
 sterilizer, 16

Gehring's pessary, 75
 pessary for prolapse, 134

General diseases as cause of acute endometritis, 161
 endometritis, 161

Genital fistulæ, 91-96

Genu-pectoral, 22

Glands of Bartholini, 52
 of vagina, 52

Glandular proliferous cysts, 220-222
 uterine polypi, 185

Glass drains, methods of keeping clean, 16

Gonococcus of Neisser, 89

Gonorrhea as cause of acute endometritis, 161
 vaginal secretion in, 23

Gonorrheal vaginitis, 86, 87
 vulvitis, 54

Goodell's cervical dilator, 47, 48

Graafian follicles, 210

Graily Hewitt's anteversion pessary, 111

Granular vaginitis, 87-89

Gynecologic diagnosis, 22

 examinations, 18

 history, 18

 positions, 19-22

Gynecologist, preparation of hands of, 12

HABITUAL miscarriages as cause of uterine carcinoma, 189

Hands, sterilization of, 12

Hanks' dilator, 46

Headache in chronic prolapse, 132
 in retrodisplacements, 115
 in retroflexion of uterus, 113

Hegar's method of treating stump in abdominal hysterectomy, 179-181
 operation for posterior colporrhaphy, 82, 83

Hegar's posterior colporrhaphy for prolapse, 134
 solid dilator, 46

Hematocolpos, 73, 74

Hematometra, 152

Hematosalpinx, 201

Hemophilia as cause of metrorrhagia, 144

Hemorrhage from the vulva, 62

 in acute prolapse, 132

 into cyst cavity, 224

 in treatment of retroflexion, 114

 in uterine carcinoma, 190

 in uterine sarcoma, 192

Hemostatic suture of pelvic floor in Martin's colpohysterectomy, 197

Hereditary tendency as cause of uterine carcinoma, 189

Hernia into the labium majus (pudendal hernia), 60, 61

Hernia labialis inguinalis, 60

 of ovary, 211

 of tube, 211

 vaginalis labialis, 60

Herpes of vulva, 64

Higbee's bivalve speculum, 40
 speculum, 40

High amputation of cervix for uterine carcinoma, 193, 194
 in infravaginal hypertrophy of cervix, 154

History of patient, methods of obtaining, 18

Hodge-Smith pessary for retrodisplacements, 125, 126

Hydrocele of round ligament, 61

Hydrometra, 152

Hydronephrosis in prolapse of uterus, 131

Hydrosalpinx, 201

Hymen, 51, 52

 annularis, 52

 cribriformis, 52

 fimbriatis, 52

Hyperplasia of uterus following cervical laceration, 155

Hypertrophic elongation of cervix, 154

Hypnotism in amenorrhea, 144

Hypospadias, 239

Hysteria in chronic prolapse, 132

Hysterorrhaphy for retrodisplacements, 123, 124

IMPERFORATE hymen, 52

Impression given to examining finger in pelvic peritonitis, 238

Incision in Alexander's operation for retrodisplacement, 121

Incision in Mackenrodt's operation, 124
 in treatment of cervical stenosis, 152
 of cervix in treatment of amenorrhea, 144

 in treatment of obstructive dysmenorrhea, 148

 of sac through vagina in salpingitis, 204

Increased uterine weight causing prolapse, 130
 Indications for abdominal hysterectomy
 for uterine fibromata, 177
 for Alexander's operation for retrodisplacement, 121
 for colpohysterectomy, 194
 for curette, 49, 50
 for ovariectomy, 231
 for palliative treatment in uterine carcinoma, 198
 for tapping ovarian cystoma, 231
 for use of pessary in retrodisplacement, 126
 Indigation, 25
 Infantile uterus, 151
 Infectious bacteria, 9
 Inflammation of uterus as cause of congestive dysmenorrhea, 146
 Inflammatory conditions causing ante-
 flexion, 104
 Infravaginal hypertrophy of cervix, 154
 Infundibulo pelvic ligament, 210
 Infundibulum of oviduct, 200
 Injection of microorganism of erysipelas
 for uterine cancer, 198, 199
 Injuries during parturition as cause of
 stenosis of cervical canal, 152
 Inspection, 22
 of external genital organs, 23
 of vagina, 23
 Instrumental means of examination, 35
 Instruments for gynecologic examination,
 34-50
 for ovariectomy, 232
 sterilization of, 13
 Internal laceration of perineum, 79
 Interstitial fibromata of uterus, 172
 Intraperitoneal hematocele, 205
 treatment of stump in abdominal hys-
 terectomy, 179-182
 in ovariectomy, 234
 Introduction of sutures in Emmet's opera-
 tion for posterior colpor-
 rhaphy, 82
 Introversion of uterus, 135
 Inversion of uterus, 134-141
 Irrigation of bladder in chronic cystitis,
 243
 Irritability of bladder, 240
 from anteversion, 108
 in retrodisplacements, 115
 Isthmus of oviduct, 200

JUNIPERIZED catgut, 14

KNEE-CHEST position in reduction of
 retrodisplacement, 118, 119
 position in treatment of retrodisplace-
 ment, 117-119
 Kobelt's tubes, 211
 Kraurosis of vulva, 63
 Krug's frame, 12

LABIA majora, 50
 minora, 51
 Lacerated perineum, causing anteversion,
 112
 prolapse, 130
 retrodisplacement, 114
 Lacerations of cervix uteri, 155
 Lack of development as cause of amen-
 orrhea, 142
 of uterine support causing prolapse,
 130
 Laminaria or sea-tangle tents, 44, 45
 tent, 44, 45
 Laparotomy for salpingitis, 204
 Large cysts of ovary, 220-232
 Lateral displacements of uterus, 102
 Left lateral position, 22
 Length of time the pessary is allowed to
 remain, 112
 tent should remain, 45
 of the vaginal walls, 71
 Leukorrhea in ante-
 flexion, 105
 in chronic prolapse, 132
 in retrodisplacements, 115
 in retroflexion of uterus, 113
 in uterine carcinoma, 190
 vaginal, 18
 Ligaments of ovary, 210
 of uterus, 100
 Ligation of uterine artery in Martin's
 colpohysterectomy, 197
 Ligatures, 14
 chromicized catgut, 15
 juniperized catgut, 14
 preparation of, 14
 silkworm gut, 14
 Lines of incision for flap-splitting opera-
 tion for complete laceration
 of perineum, 86
 for incomplete laceration of
 perineum, 84
 Lipomata of vagina, 91
 of vulva, 66
 Lithotomy position, 20
 Local symptoms of congestive dysmen-
 orrhea, 146
 Location for dilatation of tube in salpin-
 gitis, 201
 for scirrhus carcinoma of uterus, 190
 for uterine sarcoma, 192
 for vaginal carcinoma, 90
 of cysts of parovarium, 219
 of encephaloid cancer, 189
 of epithelioma of uterus, 187
 of oviducts, 199
 of urethrovaginal fistula, 94
 of vaginal sarcoma, 90
 of various forms of fistula, 91
 Lupus of vulva, 66
 Luxurious modes of life as cause of amen-
 orrhea, 142
 Lymphangiectasis of fibromata of uterus,
 172
 Lymphatics of external genitalia, 53
 of uterus, 99
 of vagina, 72

- MACKENRODT'S** operation for supra-vaginal fixation, 124
- Malignant adenoma of uterus**, 187
disease as cause of metrorrhagia, 144
neoplasms of vagina, 90, 91
tumors of labia, 66
of vulva, 66
- Manipulation of sound for correction of retrodisplacement**, 119, 120
- Marine sponges**, 15, 16
- Martin's colpohysterectomy**, 195-198
myomectomy for uterine fibromata, 185
operation by ligation of uterine arteries for cure of fibromata, 185
posterior colporrhaphy for prolapse, 134
- Meatus urinarius**, 51
- Mechanical or obstructive dysmenorrhea**, 147
- Medical treatment of hematocele**, 208
- Medullary carcinoma of uterus**, 187-192
sarcoma of vulva, 66
- Membranous dysmenorrhea**, 148-149
- Menorrhagia**, 144, 145
in antelexion, 105
in retrodisplacement, 115
- Mensuration**, 23
- Mental anxiety as cause of uterine carcinoma**, 189
- Mesosalpinx**, 200
- Methods for determination that pessary has been properly introduced**, 127
- Method for rapid dilatation**, 48
for removal of dermoid cyst, 234
intraligamentous cysts, 234
of suppurating ovarian cysts, 234
of examination for antelexion, 106
of extension of uterine carcinoma, 189
of introducing the Sims' speculum, 39
a tent, 45
catheter in cystitis, 244
of introduction of Barnes' bag, 48-49
of dilators, 46-48
of pessary, 126-129
- Methods for retaining uterus in position**, 125-129
of obtaining a gynecologic history, 18
of preparing hands for operations, 12, 13
of reduction in retrodisplacements, 118
of sterilization of hands, etc., 12
- Metritis**, 167-171
causing antelexion, 105
following cervical laceration, 156
- Metrorrhagia**, 144, 145
- Microscopic examination of fluid from ovarian tumors**, 221
of urine in cystitis, 242
- Mikulicz drains**, 17
- Mineral waters in treatment of cystitis**, 243
- Moderately curved scissors**, 80
- Modified dorsal position**, 20
- Molding of hard rubber pessaries**, 127
- Mons veneris**, 50
- Morcellement for uterine fibromata**, 176, 177
- Most frequent location for epithelioma**, 189
- Mucous glands of vagina**, 52
- Mucous layer of uterus**, 98
uterine polypi, 186
- Müller's ducts in formation of female genitalia**, 150
- Multilocular ovarian cysts**, 220, 221
- Mundé pessary for ovarian prolapse**, 212
- Muscles of perineum**, 78
- Muscular layer of uterus**, 98
- Myomata of ovary**, 218
- Myomectomy for uterine fibromata**, 177
- Myxomatous degeneration of fibromata of uterus**, 171
- NABOTHIAN cysts**, 98
glands, 98
- Nerves of external genitalia**, 53
of uterus, 99
of vagina, 72
- Nervous phenomena in chronic prolapse**, 132
in retrodisplacements, 115
- Nerve supply of ovary**, 210
- Neuralgic dysmenorrhea**, 145, 146
- Noeggerath's method for reduction of inversion**, 139
- Noma or gangrene of vulva**, 56
- Noncystic salpingitis**, 200
- Nonpuerperal causes of inversion of uterus**, 135
- Normal condition of vaginal walls**, 78
direction of axis of uterus, 97
position of uterus, 99
- Number of assistants for ovariectomy**, 231, 232
of ovules in each ovary, 210
- Nymphæ**, 51
- OBESITY as cause of amenorrhea**, 142
- Objection to sound in correction of retrodisplacements**, 120
- Object of pessary in anterior displacements**, 111
- Oophoritis**, 213-217
- Oophoron**, 210
- Opening Douglas's culdesac in Martin's colpohysterectomy**, 196, 197
the anterior vaginal fornix in Martin's colpohysterectomy, 197
the vesicouterine pouch in Martin's colpohysterectomy, 197
- Operating room**, 11
preparation of, 11
- Operations for cystocele**, 76-78
and rectocele, 76-86
for rectocele, 76-86

- Operations for vesicovaginal fistula, 93, 94
in private houses, 11
- Operative measures for cervical dilatation,
49
procedures for cervical dilatation, 44-
47
treatment for uterine carcinoma, 193-
199
of retrodisplacements, 120-129
- Operator and his assistants, 12
- Origin of dermoid ovarian cyst, 222, 223
- Ovarian abscess as result of salpingitis,
202
carcinomata, 218
dysmenorrhea, 149, 150
ligament proper, 210
ligaments, 210
myomata, 218
sarcomata, 218, 219
tumors, 217
- Ovariectomy, 231, 232
- Overtaxing the nervous system as cause
of amenorrhea, 142
- PACHYSALPINGITIS**, 201
- Pain as a symptom, 18
in acute prolapse, 132
in chronic prolapse, 132
in ovarian dysmenorrhea, 150
in uterine carcinoma, 190
in uterine sarcoma, 193
- Palliative operation for uterine carcinoma,
198, 199
treatment of cervical laceration, 157
of uterine carcinoma, 193-199
fibromata, 175
- Palpation, 24
effect of abdominal massage in, 24
- Papillary cysts of ovary, 222, 223
proliferous cysts of ovary, 220-222
- Papillomata of cervix, 186
- Parametritis as cause of metrorrhagia, 144
as result of endometritis, 162
causing ante flexion, 105
- Paroophoron, 210
- Parovarium, 211
- Partial inversion of uterus, 135
laceration of perineum, 79
- Pathological causes of amenorrhea, 142
changes in position of uterus, 101
- Pathology of acute cystitis, 241
endometritis, 161
metritis, 167
oophoritis, 213, 214
vaginitis, 87
of cervical laceration, 155, 156
of chronic cystitis, 241
endometritis, 163, 164
metritis, 169
oophoritis, 214
vaginitis, 87
of congenital retroflexion of uterus,
112
of congestive dysmenorrhea, 146
of fibromata of uterus, 171, 172
- Pathology of hematocele, 206
of inversion of uterus, 136
of membranous dysmenorrhea, 148
of obstructive dysmenorrhea, 147
of prolapse of uterus, 130
of retrodisplacements of uterus, 115
of salpingitis, 201, 202
of tuberculosis of oviducts, 205
of uterine carcinoma, 189, 190
inversion, 136
polypi, 186
prolapse, 130, 131
sarcoma, 192, 193
- Patient, position of, 19
preparation of, for abdominal opera-
tion, 10
for examination of, 19
for vaginal operations, 10
- Peasler's and Kammerer's solid dilators,
45, 46
- Pedicle of ovarian cysts, 222
- Pediculi of vulva, 64
- Pedunculated parovarian cysts, 219
- Pelvic congestion in prolapse, 131
hematocele, 205-209
or uterine tumors as cause of conges-
tive dysmenorrhea, 146
peritonitis, 238, 239
as result of endometritis, 162
tenesmus in retroflexion of uterus, 113
- Percussion and auscultation, 24
- Perimetritis as result of endometritis, 162
- Perineal anatomy, 78, 79
body, 78
muscles, 78
- Perineotomy in Martin's colpohysterec-
tomy, 196
- Peritonitis as cause of congestive dys-
menorrhea, 146
as result of salpingitis, 202
causing ante flexion, 105
- Periuterine hematoma, 205-208
- Persons most apt to have ante flexion, 103
- Pessaries in anterior displacements, 111,
112
- Pessary for retention of reposition in re-
trodisplacements, 125
for retrodisplacements, 117
- Phlegmonous vulvitis, 54-56
- Physical signs of acute endometritis, 162
of cancer of body of uterus, 191
of chronic metritis, 169
oophoritis, 215
of encephaloid uterine carcinoma,
191
of endometritis, 165
of epithelioma of uterus, 190
of hematocele, 207
of inversion of uterus, 136
of ovarian cysts, 226
of pelvic peritonitis, 238
of prolapse of uterus, 132
of retroflexion of uterus, 113, 114
of salpingitis, 203
of scirrhus uterine carcinoma, 191
of uterine polypi, 186

- Physiological causes of amenorrhea, 142
 Physometra, 152
 Placental uterine polypi, 186
 Plethora as cause of congestive dysmenorrhea, 146
 Polypoid endometritis, 163
 Polyps of uterus, 185-187
 Position, dorsal, 19
 dorso sacral, 20
 for introduction of Barnes' bag, 49
 of dilator, 46
 genu-pectoral, 22
 left lateral or Sims', 20,
 modified dorsal or lithotomy, 20
 of cervix in antelexion, 106
 in anteversion, 107
 in inversion of uterus, 136
 in prolapse of first degree, 129
 in prolapse of second degree, 103
 in prolapse of third degree, 130
 in retroflexion, 112
 of fundus in retroflexion, 112
 of patient, 19
 for diagnosis of retrodisplacement, 115
 in bimanual reduction for inversion, 139
 of patient in bimanual reposition for retrodisplacements, 118
 in Emmet's operation for cervical laceration, 157
 in hysterorrhaphy, 123
 in introduction of pessary, 126
 of tent, 45
 in irrigation of bladder in cystitis, 244
 in Mackenrodt's operation, 124
 in Martin's colpohysterectomy, 195
 in reposition of prolapsed ovary, 212
 of retrodisplacements, 118
 in total abdominal hysterectomy, 182
 in treatment of prolapse, 133, 134
 of the body in antelexion, 103
 of the operator's hands in bimanual reposition for retrodisplacements, 118
 of uterus due to distention of bladder, 100
 of rectum, 101
 Trendelenberg, 20
 upright, 20
 Posterior displacements of uterus, 102, 112-129
 Postmortems, methods of sterilization of hands and person after, 12
 Predisposing causes of anteversion, 107
 of ovarian cysts, 225
 of posterior displacement of uterus, 114
 of uterine prolapse, 130
 of vaginitis, 86
 Predisposition of race to carcinoma of uterus, 189
 Pregnancy causing retrodisplacements, 114
 Preliminaries to the use of tents, 45
 Premature rupture of membranes as cause of cervical laceration, 155
 Preparation for an examination, 19
 of sponges, 15, 16
 Preparatory treatment for Alexander's operation, 121
 for introducing cervical dilator, 46
 for Mackenrodt's operation, 124
 for ovariectomy, 231
 for repair of lacerated perineum, 80, 81
 of abdominal hysterectomy for uterine fibromata, 177
 to cure of cervical laceration, 157
 to use of Braun's colpeurynter, 134
 Preputium clitoridis, 51
 Pressure from above causing uterine prolapse, 130
 Private houses, preparation of operating room in, 11
 Procidentia of uterus, 130
 Profluent ovarian hydrops, 219
 Prognosis of acute inversion, 139
 of chronic inversion, 139
 of inversion of uterus, 139
 of uterine carcinoma, 192
 Prolapse of ovary, 211, 212
 of ovaries and tubes from retrodisplacement, 115
 of urethra, 69
 of uterus, 129-134
 of first degree, 129, 130
 of vaginal walls, 74-86
 Proliferous cysts of ovary, 220
 Prophylactic treatment of chronic endometritis, 165, 166, 170
 of cystitis, 242
 of salpingitis, 204
 Prurigo of vulva, 64
 Pruritus vulvæ, 58, 59
 Pudendal hematoma, 61, 62
 hernia, 60, 61
 Puerperal causes of inversion of uterus, 135
 Pyometry, 152
 Pyosalpinx, 201
 RADICAL treatment of cervical laceration, 157-160
 of salpingitis, 204
 Rapid cervical dilatation, 47, 48
 expulsion of child as cause of cervical laceration, 155
 reduction of inversion by White's method, 140
 Recamier curette, 50
 Rectal examination in antelexion, 106
 in anteversion, 109
 in chronic oophoritis, 215
 in diagnosis of retrodisplacement, 116

- Rectal examination in inversion of uterus, 136
 tenesmus in chronic prolapse, 132
 in retrodisplacements, 115
 Recto-abdominal method of examination, 34
 Rectocele, 74, 129-134
 causing retrodisplacement of uterus, 114
 Rectolabial fistula, 92
 Rectovaginal fistula, 91, 92
 Rectum, digital eversion of, 29
 digital examination of, 30
 Régimé of patients before and after perineal operations, 86
 Relations of external genital organs, 52
 of ovaries, 209
 of vagina, 72
 Repeated parturitions as cause of uterine carcinoma, 189
 Replacement by sound in retrodisplacement, 119-120
 of inversion by instrumental means, 139-141
 of uterus in position in retrodisplacements, 117-120
 Results of atresia of vagina, 73
 of cervical stenosis, 152
 of enterocele, 75
 of internal hemorrhage, 208
 of laceration of levator ani, 78-79
 of pelvic peritonitis, 238
 of uterine fibromata, 172
 Retained secundines as cause of metrorrhagia, 144
 Retention of uterus in position after the malposition has been corrected, 117-129
 Retentive power of abdominal cavity, 100
 Retroflexion, 102
 of body of uterus, 102
 of uterus, 101, 112-129
 Retroposition with ante flexion, 104
 Retroversion, 102
 Retroversio flexio, 115
 Retroversion of uterus for ligation of broad ligaments in colpohysterectomy, 197
 Retro-uterine hematocele, 205-208
 Rigid os as cause of cervical laceration, 155
 Risks from opening a vulvo-vaginal abscess, 60
 Round ligament of uterus, 100
 Rudimentarius uteri, 151
 Rupture of ovarian cysts, 224
- SALPINGITIS**, 200-209
 with occlusion of ostium, without distention, 200
 Salpingo-oophorectomy, 184-185
 Sarcoma of labia, 66
 Sarcomata of ovary, 218
 of uterus, 192-199
 of vagina, 90, 91
- Sarcomata of vulva, 66
 Scabies of vulva, 64
 Schroeder's operation for cervical laceration, 159
 Schücking's colpohysteropexy or colpohysterorrhaphy, 125
 Schweder's method of treating stump in abdominal hysterectomy, 179-182
 Scirrhus carcinoma of uterus, 187-192
 of labia, 66
 of vulva, 66
 Seat for sarcoma of vulva, 66
 for scirrhus of labia, 66
 for vulvar and labial elephantiasis, 65
 for vulvar lupus, 66
 Sebaceous glands of vagina, 52
 Secondary results of cervical stenosis, 152
 Senile atrophy as cause of stenosis of cervical canal, 151
 Separation of cyst sac in ovariectomy, 233
 Sepsis as cause of acute endometritis, 161
 of oophoritis, 213
 of salpingitis, 200
 Septic infection as cause of acute metritis, 167
 Sequelæ of ovarian cysts, 224, 225
 Serous layer of uterus, 98
 Serre-nœud in abdominal hysterectomy, 179
 Sessile parovarium cysts, 219
 Shape of ovaries, 209
 of uterus, 96
 Sharp curette, 49, 50
 Shock in acute prolapse, 132
 or fright as cause of amenorrhea, 142
 Shortening of uterine canal in retroflexion, 114
 Silk ligatures, 14
 worm gut ligatures, 14
 Silver wire, 14
 Simon's operation for cervical laceration, 159
 speculum, 41
 Simple inversion of uterus, 135
 Simple vulvar papilloma, 65
 Simpson's sound, 35
 Sims' curette, 50
 depressor, 41
 position, 22
 retraction, 39-40
 sound, 35
 speculum, disadvantages of, 39
 methods of introducing, 39
 modification of, 39
 uses of, 40, 41
 Size of ovaries, 209
 of oviducts, 199
 of uterus, 96
 Slight inversion of uterus, 135
 laceration of perineum, 79
 Slippery elm tent, 44, 45
 tents, 45
 Small cysts of ovary, 219, 220
 Smith-Hodge pessary for anteversion, 111
 Solid dilators for cervical dilatation, 44-48

- Solid ovarian tumors, 217-219
 Sound in diagnosis of retrodisplacements, 116
 Sound, the, 35
 the, dangers and contraindications to the use of, 36
 the method of introducing, 37
 the, preparation for the use of, 36
 the uses of, 36
 Spasmodic contractions at internal os as cause of obstructive dysmenorrhea, 147
 Specula, cylindrical, 38
 position of patient for the introduction of, 39
 self retaining, 39, 40
 advantages and disadvantages of, 41
 sterilization of, 42
 the, 38
 trivalve, 40
 valvular, 38
 with two or more valves, 41
 Speculum, method of introducing, 41
 Splitting cervix with currettement for uterine fibromata, 175
 Sponges for ovariectomy, 232
 gauze, 15
 marine, 15
 Spontaneous atrophy of fibroid of uterus, 171
 Staffordshire knot in ovariectomy, 233, 234
 Stellate laceration of cervix uteri, 155
 Stem repositor for inversion of uterus, 139
 Stenosis of cervical canal, 151-153
 of os uteri as cause of mechanical dysmenorrhea, 147
 or atresia of cervical canal as cause of amenorrhea, 142
 Steps of Emmett's operation for anterior colporrhaphy, 77, 78
 Sterility in anteversion, 105, 106
 in retroflexion of uterus, 113
 or habitual abortion in retrodisplacements, 115
 Sterilization of hands, 12
 of instruments, 13
 of ligatures, 14, 15
 Sterilizer, gauze, 16
 Stoltz's anterior colporrhaphy for prolapse, 134
 operation for anterior colporrhaphy, 77
 Structure of uterus, 98
 of vagina, 71
 Structures holding uterus in position, 97
 Subinvolution as cause of metrorrhagia, 144
 causing retrodisplacements, 114
 following cervical laceration, 156
 Submucous fibromata of uterus, 172
 tumors as cause of metrorrhagia, 144
 Subperitoneal hematocoele, 206
 Subserous fibromata of uterus, 172
 Supplementary menstruation, 142
 Suppressio mensium, 142
 Supravaginal hypertrophy of cervix, 154
 hysterectomy for uterine fibromata, 177-185
 Surgical treatment of hematocoele, 208
 Suture of abdominal wall in ovariectomy, 235
 Sutures, 14
 Symptoms of abscess of vulvovaginal gland, 59, 60
 of acute cystitis, 242
 endometritis, 161, 162
 inversion of uterus, 136
 metritis, 168
 oophoritis, 214
 pelvic peritonitis, 238
 prolapse of uterus, 132
 of amenorrhea, 142, 143
 of anteversion, 105
 of anteversion, 107, 108
 of atresia of vagina, 73
 of catarrhal vulvitis, 53
 of cervical laceration, 156
 of chronic endometritis, 164, 165
 inversion, 136
 metritis, 169
 oophoritis, 214, 215
 pelvic peritonitis, 238
 prolapse of uterus, 132
 of coccygodynia, 67, 68
 of congenital retroflexion of uterus, 112, 113
 of cyst of vulvovaginal gland, 59
 of diabetic vulvitis, 57
 of diphtheritic cystitis, 242
 of displacement of ovary, 211
 of fibromata of uterus, 173
 of follicular vulvitis, 58
 of gangrene of vulva, 56
 of gonorrheal vulvitis, 54
 of hematocolpos, 73
 of infravaginal hypertrophy of cervix, 154
 of internal hemorrhage, 206, 207
 of irritability of bladder, 240
 of lacerated perineum, 79, 80
 of malignant neoplasms of vagina, 90
 of membranous dysmenorrhea, 148, 149
 of neuralgic dysmenorrhea, 145, 146
 of noma, 56
 of obstructive dysmenorrhea, 147, 148
 of ovarian congestion, 212
 cysts, 225, 226
 dysmenorrhea, 150
 fibromata, 218
 myomata, 218
 prolapse, 212
 of phlegmonous vulvitis, 55
 of primary stage of hematocoele, 206, 207
 of prolapse of uterus, 132
 of pruritus vulvæ, 58
 of pudendal hematoma, 61, 62
 hernia, 61
 of retrodisplacements of uterus, 115
 of salpingitis, 202, 203

- Symptoms of secondary stage of hematocele, 207
 of septic infection following ovariectomy, 237
 of supravaginal hypertrophy of cervix, 154
 of urethrocele, 69
 of uterine carcinoma, 190, 191
 polypi, 186
 prolapse, 132
 sarcoma, 193
 of vaginal prolapse, 75
 of vaginitis, 87, 88
 of vesicovaginal fistulæ, 92
 of vulvar eczema, acute form, 63
 chronic form, 63
 erysipelas, 65
 erythema, 63
 kraurosis, 63
 pediculi, 64
 scabies, 64
 of vulvovaginal hyperesthesia, 70, 71
 Syphilitic salpingitis, 201
 Syringe, uterine, 44
- TAIT-SÆNGER**, or flap-splitting operation for lacerated perineum, 83-86
- Tait suture in ovariectomy, 233
- Tamponing of vagina in treatment of retroflexion, 114
- Tapping the cyst in ovariectomy, 233
- Technic of abdominal hysterectomy, 177-185
 of high amputation of cervix for uterine carcinoma, 193, 194
 of Martin's colpohysterectomy, 194-198
 operation by ligation of uterine arteries, 185
 of operation for ovariectomy, 232
 of salpingo-oophorectomy, 184, 185
 of tapping cyst in ovariectomy, 233
 of total abdominal hysterectomy, 182-184
- Telangiectatic tumors of uterus, 172
- Tenacula, 42
 forceps, 42
 tenacula forceps, and volsella, indication for the use of, 42
 uses of, 42, 43
- Tenesmus from anteversion, 108
- Tents for dilatation of cervix, 44, 45
 their varieties, 44, 45
- Termination of acute oophoritis, 214
- Thomas' anteversion pessary, 111
 curette, 50
 method for reduction of inversion, 140
 pessary for ovarian prolapse, 212
 for retrodisplacements, 125, 126
 probe, 35
- Three degrees of inversion of uterus, 135
- Thrombus of vulva, 61, 62
- Time and method of evacuation of bowels after ovariectomy, 236
- Time for removal of stitches after ovariectomy, 236, 237
 most favorable for Emmet's trachelorrhaphy, 159
- Toilet of peritoneum in ovariectomy, 234, 235
 of wound in after-treatment of ovariectomy, 237
- Too early application of forceps as cause of cervical laceration, 155
 frequent coition as cause of uterine carcinoma, 189
- Tooth forceps, 80
- Topographic anatomy of round ligament, 122
- Topography of normal female pelvic organs, 98
- Torsion of pedicle of ovarian cysts, 224
- Total abdominal hysterectomy, 182-184
- Traction from below causing prolapse, 130
- Transplantation of ovarian cyst, 224
- Traumatism as cause of uterine carcinoma, 189
- Treatment of abscess of vulvo-vaginal gland, 60
 of acute catarrhal vulvitis, 53
 endometritis, 162, 163
 metritis, 168
 oophoritis, 214
 pelvic peritonitis, 239
 prolapse, 133
 vulvar eczema, 63
 of adhesive vaginitis, 89, 90
 of amenorrhea, 143, 144
 of anteversion, 109-112
 of anterior displacements of uterus, 109-112
 of anteversion, 109-112
 of ascent of uterus, 102
 of attack of congestive dysmenorrhea, 146, 147
 between attacks of congestive dysmenorrhea, 147
 of cervical laceration, 157-160
 stenosis, 152
 of chronic catarrhal vulvitis, 54
 endometritis, 165, 167, 170, 171
 pelvic peritonitis, 239
 prolapse, 133, 134
 vulvar eczema, 63
 of coccygodynia, 68
 of croupous vulvitis, 56
 of cyst of vulvo-vaginal gland, 59
 of cystic vaginitis, 90
 of cystitis, 242-245
 of diabetic vulvitis, 57
 of diphtheritic vulvitis, 56
 of displacement of ovary, 211
 of elephantiasis of vulva, 66
 of existing endometritis, 166, 167
 of fibromata of vulva, 66
 of follicular vulvitis, 58
 of gangrene of vulva, 56
 of gonorrheal vaginitis, 89
 vulvitis, 54
 of hematocolpos, 73

Treatment of hydrocele of round ligament, 61
 of infravaginal hypertrophy of cervix, 154
 of inversion of uterus, 139-141
 of irritability of bladder, 240
 of laceration of perineum, 80-86
 of lipomata of vulva, 66
 of malignant neoplasms of vagina, 90, 91
 of malignant tumors of labia and vulva, 66
 of membranous dysmenorrhea, 149
 of menorrhagia, 144
 of metrorrhagia, 144
 of neuralgic dysmenorrhea, 145, 146
 of noma, 56
 of obstructive dysmenorrhea, 148
 of oophoritis (chronic), 216
 of ovarian congestion, 212, 213
 of ovarian cysts, 230-232
 dysmenorrhea, 150
 prolapse, 212
 of patient in reduction of inversion, 140, 141
 of phlegmonous vulvitis, 56
 of posterior displacements of uterus, 117-129
 of prolapse of uterus, 133, 134
 of pruritus vulvæ, 58, 59
 of pudendal hematoma, 62
 hernia, 61
 of rectovaginal fistulæ, 95, 96
 of retroflexion of uterus, 114
 of salpingitis, 204
 of septic infection following ovariectomy, 237
 of simple vulvar papilloma, 65
 of solid tumors of ovary, 219
 of tuberculosis of oviducts, 205
 of urethral caruncle, 68
 prolapse, 70
 stricture, 69
 of urethrocele, 69
 of urethrovaginal fistulæ, 94
 of uterine carcinoma, 193-199
 inversion, 139-141
 polypi, 186, 187
 of vaginal fibromata, 91
 prolapse, 75-86
 of vaginismus, 67
 of vaginitis, 89, 90
 of vesicouterine fistula, 95
 of vesicovaginal fistulæ, 93, 94
 of vulvar acne, 64
 condyloma acuminata, 65
 lata, 65
 erysipelas, 65
 erythema, 63
 hemorrhage, 62
 herpes, 64
 kraurosis, 63
 lupus, 66
 pediculi, 64
 prurigo, 64
 scabies, 64

Treatment of vulvovaginal hyperesthesia, 71
 Trendelenberg position, 20
 Tuberculosis of oviducts, 205
 Tuberculous salpingitis, 201
 Tuboovarian cysts, 200, 219
 ligament, 210
 Tubules of parovarium, 211
 Tumors blocking cervical canal as cause of obstructive dysmenorrhea, 147
 causing antelexion, 105
 of ovary, 217
 of uterus, 171-199
 of vulva, 65, 66
 Tupelo tent, 44, 45
 tents, 45

UNILATERAL laceration of cervix uteri, 155

Unilocular ovarian cysts, 221
 Upright position, 20
 Ureterouterine, 91, 92
 Ureters, vaginal palpation of, 29
 Ureterovaginal fistula, 91, 92
 Urethral caruncle, 68
 prolapse, 69
 stricture, 69
 Urethrocele, 69
 Urethrovaginal fistula, 91-94
 Use of caustics as cause of stenosis of cervix, 152
 of mechanical dilators as cause of cervical laceration, 155
 of 0.6 per cent. solution in ovariectomy, 234
 of sound in antelexion, 106
 of uterine dressing forceps, 43
 of volsellum, 42, 43
 Uses of tenacula, 42, 43
 Usual cause of death from carcinoma, 193
 Uterine anatomy, 96-99
 anomalies, 150, 151
 applicator, 43, 44
 arteries, 99
 cancer, 187-192
 cervix, 96
 coats, 98
 corpus, 96
 diseases, 99
 displacements, 102
 as result of salpingitis, 202
 dressing forceps, 43
 epithelioma, 187-192
 flexion, 103
 inversion, 134-141
 ligaments, 100
 lymphatics, 99
 nerves, 99
 polypi, 185-187
 posterior displacements, 112-129
 procidentia, 130
 prolapse, 129-134
 of first degree, 129, 130
 of second degree, 130

Uterine prolapse of third degree, 130
 , sarcoma, 192-197
 septus, 151
 syringe, 44
 tumors, 171-194
 veins, 99
 version, 103
 Uterus bicornus, 151
 duplex or didelphys, 151
 unicornus, 151
 Uterosacral ligament of uterus, 100
 Uterovesical ligament of uterus, 100
 Utricular glands, 98

VAGINA, digital examination of, 27
 inspection of, 23

Vaginal anatomy, 71, 72
 carcinoma, 90, 91
 discharge, 18
 in uterine cancer, 18
 discharges, 18
 enucleation for uterine fibromata, 175,
 176
 examination in diagnosis of retrodis-
 placements, 115, 116
 fibromata, 91
 glands, 52
 hysterectomy for uterine carcinoma,
 194-198
 in treatment of metrorrhagia, 145
 injections in treatment of menor-
 rhagia, 145
 irrigation in anterior displacements,
 109
 leukorrhea, 18
 lipomata, 91
 massage for chronic oophoritis, 216
 mucous membrane, color of in preg-
 nancy, 23
 operations, general technic, 10
 palpation of the ureters, 29
 prolapse, 74-86
 due to perineal laceration, 78-80
 sarcoma, 90, 91
 secretion, 23

Vaginismus, 66

Vaginitis, 86-90

Variations in size of uterus, 96

Varicocele pampiniform plexus in pro-
 lapse, 132

Varicose degeneration of cervical vessels
 in prolapse, 131

Varieties of ante flexion, 104
 of chronic endometritis, 163
 metritis, 169
 of cystic salpingitis, 200

Various diseases as cause of amenorrhea,
 142

Varieties of endometritis, 160, 161
 of erosions in chronic endometritis, 165
 of fibromata of uterus, 172
 of fistulæ of genitalia, 92
 of hymen, 52
 of inversion of uterus, 135, 136
 of lacerations of perineum, 79

Varieties of metritis, 167
 of noncystic salpingitis, 200
 of oophoritis, 213
 of pudendal hernia, 60
 of tents, 44-45
 of uterine diseases, 99
 inversion, 135, 136
 of vaginal prolapse, 74, 75
 of vaginitis, 86-90
 of vulvitis, 53

Veins of external genitalia, 53
 of uterus, 99
 of vagina, 72

Venous supply of ovary, 210

Ventrofixation for retrodisplacement, 123,
 124

Version of uterus, 103

Versions and flexions, 103

Vertical tubules, 211

Vesical irritability in chronic prolapse, 132

Vesicouterine fistulæ, 91-95.

Vesicouterovaginal fistula, 92.

Vesicovaginal fistula, 91-94
 following cervical laceration, 156

Vesicular vaginitis, 86, 87

Vessels and nerves of external genitalia,
 52, 53

Vestibule, 51

Viburnum prunifolium in treatment of
 neuralgic dysmenorrhea, 145

Vicarious menstruation, 142

Vivifying the edges of the fistula, 92

Volvella, 42

Volsellum—its uses, 42, 43

Vulvar acne, 64

condyloma acuminata, 65

condyloma lata, 65

cutaneous diseases, 62-66

eczema, 62, 63

erysipelas, 65

erythema, 63

hematocele, 61, 62

hemorrhage in children, 62

herpes, 64

kraurosis, 63

lupus, 66

pediculi, 64

prurigo, 64

scabies, 64

tumors, 65, 66

Vulvitis, 53-58

Vulvovaginal hyperesthesia, 70, 71

WEIGHT of ovaries, 209

White's egg-beater repositor for inversion
 of uterus, 139, 140

Winckel's anterior colporrhaphy for pro-
 lapse, 134

operation for anterior colporrhaphy,
 78

Wire-loop curette, 49, 50

Women most susceptible to retrodisplace-
 ment, 114

Wylie operation for retrodisplacement, 123

XENOMENIA, 142

Catalogue No. 8.

March, 1896.

CLASSIFIED SUBJECT
CATALOGUE
OF
MEDICAL BOOKS

AND

Books on Medicine, Dentistry, Pharmacy,
Chemistry, Hygiene, Etc., Etc.,

PUBLISHED BY

P. BLAKISTON, SON & Co.,

Medical Publishers and Booksellers,

1012 WALNUT STREET, PHILADELPHIA.

SPECIAL NOTE.—The prices given in this catalogue are absolutely net, no discount will be allowed retail purchasers under any consideration. This rule has been established in order that everyone will be treated alike, a general reduction in former prices having been made to meet previous retail discounts. Upon receipt of the advertised price any book will be forwarded by mail or express, all charges prepaid.

We keep a large stock of Miscellaneous Books, not on this catalogue, relating to Medicine and Allied Sciences, published in this country and abroad. Inquiries in regard to prices, date of edition, etc., will receive prompt attention.

Special Catalogues of Books on Pharmacy, Dentistry, Chemistry, Hygiene, and Nursing will be sent free upon application.


➡ SEE NEXT PAGE FOR SUBJECT INDEX.

SUBJECT INDEX.

Any books not on this Catalogue we will furnish a price for upon application.

SUBJECT.	PAGE	SUBJECT.	PAGE
Anatomy.....	3	Nose	20
Anesthetics.....	3	Nursing	15
Autopsies (see Pathology)	16	Obstetrics.. ..	16
Bandaging (see Surgery).....	19	Ophthalmology.....	9
Biology (see Miscellaneous) ...	14	Osteology (see Anatomy).....	3
Brain	4	Pathology	16
Chemistry	4	Pharmacy	16
Children, Diseases of.....	6	Physical Diagnosis	17
Clinical Charts.....	6	Physical Training (see Miscel- laneous)	14
Consumption (see Lungs).....	12	Physiology	18
Deformities	7	Poisons (see Toxicology)	13
Dentistry	7	Popular Medicine.....	10
Diagnosis.....	17	Practice of Medicine	18
Diagrams (see Anatomy, page 3, and Obstetrics, page 16).		Prescription Books.....	18
Dictionaries	8	Railroad Injuries (see Nervous Diseases).....	14
Diet and Food (see Miscella- neous)	14	Refraction (see Eye)	9
Dissectors	3	Rheumatism	10
Domestic Medicine	10	Sanitary Science	11
Ear	8	Skin.....	19
Electricity	9	Spectacles (see Eye)	9
Emergencies (see Surgery).....	19	Spine (see Nervous Diseases) 14	
Eye	9	Students' Compends.....22, 23	
Fevers	9	Surgery and Surgical Dis- eases.....	19
Gout	10	Syphilis	21
Gynecology	21	Technological Books.....	4
Headaches	10	Temperature Charts.....	6
Heart	10	Therapeutics	12
Histology....	10	Throat	20
Hospitals (see Hygiene).....	11	Toxicology.....	13
Hygiene.....	11	U. S. Pharmacopœia	16
Insanity	4	Urinary Organs	20
Journals	11	Urine.....	20
Kidneys	12	Venereal Diseases.....	21
Lungs	12	Veterinary Medicine.....	21
Massage.....	12	Visiting Lists, Physicians'. (Send for Special Circular.)	
Materia Medica.....	12	Water Analysis (see Chemis- try).....	11
Medical Jurisprudence	13	Women, Diseases of.....	21
Microscopy	13		
Milk Analysis (see Chemistry) 4			
Miscellaneous	14		
Nervous Diseases	14		

The prices as given in this Catalogue are net. Cloth binding, unless otherwise specified. No discount can be allowed under any circumstances. Any book will be sent, postpaid, upon receipt of advertised price.

 *All books are bound in cloth, unless otherwise specified. All prices are net.*

ANATOMY.

MORRIS. Text-Book of Anatomy. 791 Illus., 214 of which are printed in colors. Clo., \$6.00; Lea., \$7.00; Half Russia, \$8.00.

"Taken as a whole, we have no hesitation in according very high praise to this work. It will rank, we believe, with the leading Anatomies. The illustrations are handsome and the printing is good."—*Boston Medical and Surgical Journal*.

Handsome Circular of Morris, with sample pages and colored illustrations, will be sent free to any address.

CAMPBELL. Outlines for Dissection. Prepared for Use with "Morris's Anatomy" by the Demonstrator of Anatomy at the University of Michigan. *Just Ready.* \$1.00

HEATH. Practical Anatomy. A Manual of Dissections. 8th Edition. 300 Illustrations. \$4.25

HOLDEN. Anatomy. A Manual of the Dissections of the Human Body. 6th Edition. Carefully Revised by A. HEWSON, M.D., Demonstrator of Anatomy, Jefferson Medical College, Philadelphia. 311 Illustrations. Cloth, \$2.50; Oil-Cloth, \$2.50; Leather, \$3.00

HOLDEN. Human Osteology. Comprising a Description of the Bones, with Colored Delineations of the Attachments of the Muscles. The General and Microscopical Structure of Bone and its Development. With Lithographic Plates and numerous Illus. 7th Ed. \$5.25

HOLDEN. Landmarks. Medical and Surgical. 4th Ed. \$1.00

MACALISTER. Human Anatomy. Systematic and Topographical, including the Embryology, Histology, and Morphology of Man. With Special Reference to the Requirements of Practical Surgery and Medicine. 816 Illustrations, 400 of which are original. Cloth, \$5.00; Leather, \$6.00

MARSHALL. Physiological Diagrams. Life Size, Colored. Eleven Life-Size Diagrams (each seven feet by three feet seven inches). Designed for Demonstration before the Class.

In Sheets, Unmounted, \$40.00; Backed with Muslin and Mounted on Rollers, \$60.00; Ditto, Spring Rollers, in Handsome Walnut Wall Map Case (send for special circular), \$100.00; Single Plates—Sheets, \$5.00; Mounted, \$7.50. Explanatory Key, .50. *Descriptive circular upon application.*

POTTER. Compend of Anatomy, Including Visceral Anatomy. 5th Edition. 16 Lithographed Plates and 117 other Illustrations. .80; Interleaved, \$1.25

WILSON. Human Anatomy. 11th Edition. 429 Illustrations, 26 Colored Plates, and a Glossary of Terms. \$5.00

OBERSTEINER. Anatomy of the Central Nervous Organs. 198 Illustrations. \$5.50

ANESTHETICS.

BUXTON. On Anesthetics. 2d Edition. Illustrated. \$1.25

TURNBULL. Artificial Anesthesia. The Advantages and Accidents of; Its Employment in the Treatment of Disease; Modes of Administration; Considering their Relative Risks; Tests of Purity; Treatment of Asphyxia; Spasms of the Glottis; Syncope, etc. 3d Edition, Revised. 40 Illustrations. \$3.00

BRAIN AND INSANITY.

- BLACKBURN.** A Manual of Autopsies. Designed for the Use of Hospitals for the Insane and other Public Institutions. Ten full-page Plates and other Illustrations. \$1.25
- GOWERS.** Diagnosis of Diseases of the Brain. 2d Edition. Illustrated. \$1.50
- HORSLEY.** The Brain and Spinal Cord. The Structure and Functions of. Numerous Illustrations. \$2.50
- HYSLOP.** Mental Physiology. Especially in Relation to Mental Disorders. With Illustrations. *Just Ready.* \$4.25
- LEWIS (BEVAN).** Mental Diseases. A Text-Book Having Special Reference to the Pathological Aspects of Insanity. 18 Lithographic Plates and other Illustrations.
- MANN.** Manual of Psychological Medicine and Allied Nervous Diseases. Their Diagnosis, Pathology, Prognosis, and Treatment, including their Medico-Legal Aspects; with chapter on Expert Testimony, and an Abstract of the Laws Relating to the Insane in all the States of the Union. Illustrations of Typical Faces of the Insane, Handwriting of the Insane, and Micro-photographic Sections of the Brain and Spinal Cord. \$3.00
- REGIS.** Mental Medicine. Authorized Translation by H. M. BANNISTER, M.D. \$2.00
- STEARNS.** Mental Diseases. Designed especially for Medical Students and General Practitioners. With a Digest of Laws of the various States Relating to Care of Insane. Illustrated. Cloth, \$2.75; Sheep, \$3.25
- TUKE.** Dictionary of Psychological Medicine. Giving the Definition, Etymology, and Symptoms of the Terms used in Medical Psychology, with the Symptoms, Pathology, and Treatment of the Recognized Forms of Mental Disorders, together with the Law of Lunacy in Great Britain and Ireland. Two volumes. \$10.00
- WOOD, H. C.** Brain and Overwork. .40

CHEMISTRY AND TECHNOLOGY.

Special Catalogue of Chemical Books sent free upon application.

- ALLEN.** Commercial Organic Analysis. A Treatise on the Modes of Assaying the Various Organic Chemicals and Products Employed in the Arts, Manufactures, Medicine, etc., with concise methods for the Detection of Impurities, Adulterations, etc. 2d Ed. Vol. I, Vol. II, Vol. III, Part I. *These volumes cannot be had.* Vol. III, Part II. The Amins. Pyridin and its Hydrozins and Derivatives. The Antipyretics, etc. Vegetable Alkaloids, Tea, Coffee, Cocoa, etc. \$4.50
Vol. III, Part III. *In Press.*
- ALLEN.** Chemical Analysis of Albuminous and Diabetic Urine. Illustrated. *Just Ready.* \$2.25
- BARTLEY.** Medical and Pharmaceutical Chemistry. A Text-Book for Medical, Dental, and Pharmaceutical Students. With Illustrations, Glossary, and Complete Index. 4th Edition, carefully Revised. *Just Ready.* Cloth, \$2.75; Sheep, \$3.25
- BLOXAM.** Chemistry, Inorganic and Organic. With Experiments. 8th Ed., Revised. 281 Engravings. Clo., \$4.25; Lea., \$5.25

- CALDWELL.** Elements of Qualitative and Quantitative Chemical Analysis. 3d Edition, Revised. \$1.50
- CAMERON.** Oils and Varnishes. With Illustrations, Formulæ, Tables, etc. \$2.25
- CAMERON.** Soap and Candles. 54 Illustrations. \$2.00
- CLOWES AND COLEMAN.** Elementary Qualitative Analysis. Adapted for Use in the Laboratories of Schools and Colleges. Illustrated. \$1.00
- GARDNER.** The Brewer, Distiller, and Wine Manufacturer. A Hand-Book for all Interested in the Manufacture and Trade of Alcohol and Its Compounds. Illustrated. \$1.50
- GARDNER.** Bleaching, Dyeing, and Calico Printing. With Formulæ. Illustrated. \$1.50
- GROVES AND THORP.** Chemical Technology. The Application of Chemistry to the Arts and Manufactures. 8 Volumes, with numerous Illustrations.
- Vol. I. Fuel and Its Applications. 607 Illustrations and 4 Plates. Cloth, \$5.00; Half Morocco, \$6.50
- Vol. II. Lighting. Illustrated. Cloth, \$4.00; Half Morocco, \$5.50
- Vol. III. Lighting—Continued. *In Press.*
- HOLLAND.** The Urine, the Gastric Contents, the Common Poisons, and the Milk. Memoranda, Chemical and Microscopical, for Laboratory Use. 5th Ed. Illustrated and interleaved, \$1.00
- LEFFMANN.** Compend of Medical Chemistry, Inorganic and Organic. Including Urine Analysis. 4th Edition, Rewritten. .80; Interleaved, \$1.25
- LEFFMANN.** Progressive Exercises in Practical Chemistry. Illustrated. 2d Edition. \$1.00
- LEFFMANN.** Analysis of Milk and Milk Products. Arranged to Suit the Needs of Analytical Chemists, Dairymen, and Milk Inspectors. \$1.25
- LEFFMANN.** Water Analysis. Illustrated. 3d Edition. \$1.25
- MÜTER.** Practical and Analytical Chemistry. 4th Edition. Revised to meet the requirements of American Medical Colleges by CLAUDE C. HAMILTON, M.D. 51 Illustrations. \$1.25
- OVERMAN.** Practical Mineralogy, Assaying, and Mining. With a Description of the Useful Minerals, etc. 11th Edition. \$1.00
- RAMSAY.** A System of Inorganic Chemistry. Illus. \$4.00
- RICHTER.** Inorganic Chemistry. 4th American, from 6th German Edition. Authorized translation by EDGAR F. SMITH, M.A., PH.D. 89 Illustrations and a Colored Plate. \$1.75
- RICHTER.** Organic Chemistry. 3d American Edition. Trans. from the last German by EDGAR F. SMITH. Illustrated. *In Press.*
- SMITH.** Electro-Chemical Analysis. 2d Edition, Revised. 28 Illustrations. \$1.25
- SMITH AND KELLER.** Experiments. Arranged for Students in General Chemistry. 3d Edition. Illustrated. *Just Ready.* .60
- STAMMER.** Chemical Problems. With Explanations and Answers. .50
- SUTTON.** Volumetric Analysis. A Systematic Handbook for the Quantitative Estimation of Chemical Substances by Measure, Applied to Liquids, Solids, and Gases. 7th Edition, Revised. With Illustrations. *In Press.*

- SYMONDS. Manual of Chemistry, for Medical Students.
2d Edition. \$2.00
- TRIMBLE. Practical and Analytical Chemistry. Being a
Complete Course in Chemical Analysis. 4th Ed. Illus. \$1.50
- WATTS. Organic Chemistry. 2d Edition. By WM. A. TILDEN,
D.SC., F.R.S. (Being the 13th Edition of Fowne's Organic Chemistry.)
Illustrated. \$2.00
- WATTS. Inorganic Chemistry. Physical and Inorganic. (Being
the 14th Edition of Fowne's Physical and Inorganic Chemistry.)
With Colored Plate of Spectra and other Illustrations. \$2.00
- WOODY. Essentials of Chemistry and Urinalysis. 4th
Edition. Illustrated. *In Press.*

*** Special Catalogue of Books on Chemistry free upon application.*

CHILDREN.

- BROTHERS. Infantile Mortality During Childbirth and Its
Prevention. \$1.50
- GOODHART AND STARR. Diseases of Children. Edited,
with Notes and Additions, by LOUIS STARR, M.D. *Out of Print.*
- HALE. On the Management of Children in Health and Dis-
ease. .50
- HATFIELD. Compend of Diseases of Children. With a
Colored Plate. 2d Edition. *Just Ready.* .80; Interleaved, \$1.25
- MEIGS. Infant Feeding and Milk Analysis. The Examination
of Human and Cow's Milk, Cream, Condensed Milk, etc., and
Directions as to the Diet of Young Infants. .50
- MONEY. Treatment of Diseases in Children. Including the
Outlines of Diagnosis and the Chief Pathological Differences Between
Children and Adults. 2d Edition. \$2.50
- MUSKETT. Prescribing and Treatment in the Diseases of
Infants and Children. \$1.25
- POWER. Surgical Diseases of Children and their Treat-
ment by Modern Methods. Illustrated. *Just Ready.* \$2.50
- STARR. The Digestive Organs in Childhood. The Diseases of
the Digestive Organs in Infancy and Childhood. With Chapters on
the Investigation of Disease and the Management of Children. 2d
Edition, Enlarged. Illustrated by two Colored Plates and numerous
Wood Engravings. \$2.00
- STARR. Hygiene of the Nursery. Including the General Regi-
men and Feeding of Infants and Children, and the Domestic Manage-
ment of the Ordinary Emergencies of Early Life, Massage, etc. 4th
Edition. 25 Illustrations. \$1.00
- TAYLOR AND WELLS. Diseases of Children. Illustrated.
A New Text-Book. *Nearly Ready.*

CLINICAL CHARTS.

- GRIFFITH. Graphic Clinical Chart. Printed in three colors.
Sample copies free. Put up in loose packages of fifty, .50. Price to
Hospitals, 500 copies, \$4.00; 1000 copies, \$7.50. With name of
Hospital printed on, .50 extra.
- TEMPERATURE CHARTS. For Recording Temperature,
Respiration, Pulse, Day of Disease, Date, Age, Sex, Occu-
pation, Name, etc. Put up in pads of fifty. Each, .50

DEFORMITIES.

- REEVES.** Bodily Deformities and Their Treatment. A Hand-Book of Practical Orthopedics. 228 Illustrations. \$1.75
- HEATH.** Injuries and Diseases of the Jaws. 187 Illustrations. 4th Edition. Cloth, \$4.50

DENTISTRY.

Special Catalogue of Dental Books sent free upon application.

- BARRETT.** Dental Surgery for General Practitioners and Students of Medicine and Dentistry. Extraction of Teeth, etc. 2d Edition. Illustrated. \$1.00
- BLODGETT.** Dental Pathology. By ALBERT N. BLODGETT, M.D., late Professor of Pathology and Therapeutics, Boston Dental College. 33 Illustrations. \$1.25
- FLAGG.** Plastics and Plastic Filling, as Pertaining to the Filling of Cavities in Teeth of all Grades of Structure. 4th Edition. \$4.00
- FILLEBROWN.** A Text-Book of Operative Dentistry. Written by invitation of the National Association of Dental Faculties. Illustrated. \$2.25
- GORGAS.** Dental Medicine. A Manual of Materia Medica and Therapeutics. 5th Edition, Revised. \$4.00
- HARRIS.** Principles and Practice of Dentistry. Including Anatomy, Physiology, Pathology, Therapeutics, Dental Surgery, and Mechanism. 13th Edition. Revised by F. J. S. GORGAS, M.D., D.D.S. 1250 Illustrations. Cloth, \$6.00; Leather, \$7.00
- HARRIS.** Dictionary of Dentistry. Including Definitions of Such Words and Phrases of the Collateral Sciences as Pertain to the Art and Practice of Dentistry. 5th Edition. Revised and Enlarged by FERDINAND F. S. GORGAS, M.D., D.D.S. Cloth, \$4.50; Leather, \$5.50
- HEATH.** Injuries and Diseases of the Jaws. 4th Edition 187 Illustrations. \$4.50
- HEATH.** Lectures on Certain Diseases of the Jaws. 64 Illustrations. Boards, .50
- RICHARDSON.** Mechanical Dentistry. 6th Edition. Thoroughly Revised by DR. GEO. W. WARREN. 600 Illustrations. Cloth, \$4.00; Leather, \$5.00
- SEWELL.** Dental Surgery. Including Special Anatomy and Surgery. 3d Edition, with 200 Illustrations. \$2.00
- TAFT.** Operative Dentistry. A Practical Treatise. 4th Edition. 100 Illustrations. Cloth, \$3.00; Leather, \$4.00
- TAFT.** Index of Dental Periodical Literature. \$2.00
- TALBOT.** Irregularities of the Teeth and Their Treatment. 2d Edition. 234 Illustrations. \$3.00
- TOMES.** Dental Anatomy. Human and Comparative. 235 Illustrations. 4th Edition. \$3.50
- TOMES.** Dental Surgery. 3d Edition. 292 Illustrations. \$4.00
- WARREN.** Compend of Dental Pathology and Dental Medicine. With a Chapter on Emergencies. Illustrated. .80; Interleaved, \$1.25
- WARREN.** Dental Prosthesis and Metallurgy. 129 Ills. \$1.25
- WHITE.** The Mouth and Teeth. Illustrated. .40

*** Special Catalogue of Dental Books free upon application.*

DICTIONARIES.

GOULD. The Illustrated Dictionary of Medicine, Biology, and Allied Sciences. Being an Exhaustive Lexicon of Medicine and those Sciences Collateral to it: Biology (Zoology and Botany), Chemistry, Dentistry, Pharmacology, Microscopy, etc., with many useful Tables and numerous fine Illustrations. 1633 pages.

Sheep or Half Dark Green Leather, \$10.00; Thumb Index, \$11.00
Half Russia, Thumb Index, \$12.00

GOULD. The Medical Student's Dictionary. Including all the Words and Phrases Generally Used in Medicine, with their Proper Pronunciation and Definition, Based on Recent Medical Literature. With Tables of the Bacilli, Micrococci, Leucomains, Ptomaines, etc., of the Arteries, Muscles, Nerves, Ganglia, and Plexuses, etc.

Half Dark Leather, \$2.75; Half Morocco, Thumb Index, \$3.50

GOULD. The Pocket Pronouncing Medical Lexicon. (12,000 Medical Words Pronounced and Defined.) Containing all the Words, their Definition and Pronunciation, that the Medical, Dental, or Pharmaceutical Student Generally Comes in Contact With; also Elaborate Tables of the Arteries, Muscles, Nerves, Bacilli, etc., etc., a Dose List in both English and Metric System, etc., Arranged in a Most Convenient Form for Reference and Memorizing.

Full Limp Leather, Gilt Edges, \$1.00; Thumb Index, \$1.25

. Sample Pages and Illustrations and Descriptive Circulars of Gould's Dictionaries sent free upon application.

HARRIS. Dictionary of Dentistry. Including Definitions of Such Words and Phrases of the Collateral Sciences as Pertain to the Art and Practice of Dentistry. 5th Edition. Revised and Enlarged by FERDINAND J. S. GORGAS, M.D., D.D.S. Cloth, \$4.50; Leather, \$5.50

LONGLEY. Pocket Medical Dictionary. Giving the Definition and Pronunciation of Words and Terms in General Use in Medicine and Collateral Sciences, with an Appendix, containing Poisons and their Antidotes, Abbreviations used in Prescriptions, and a Metric Scale of Doses.

Cloth, .75; Tucks and Pocket, \$1.00

CLEVELAND. Pocket Medical Dictionary. 33d Edition. Very small pocket size.

Cloth, .50; Tucks with Pocket, .75

MAXWELL. Terminologia Medica Polyglotta. By Dr. THEODORE MAXWELL, Assisted by Others. \$3.00

The object of this work is to assist the medical men of any nationality in reading medical literature written in a language not their own. Each term is usually given in seven languages, viz.: English, French, German, Italian, Spanish, Russian, and Latin.

TREVES AND LANG. German-English Medical Dictionary. Half Russia, \$3.25

EAR (see also Throat and Nose).

HOVELL. Diseases of the Ear and Naso-Pharynx. Including Anatomy and Physiology of the Organ, together with the Treatment of the Affections of the Nose and Pharynx which Conduce to Aural Disease. 122 Illustrations. \$5.00

BURNETT. Hearing and How to Keep It. Illustrated. .40

DALBY. Diseases and Injuries of the Ear. 4th Edition. 28 Wood Engravings and 7 Colored Plates. \$2.50

HALL. Compend of Diseases of Ear and Nose. Illustrated. .80; Interleaved, \$1.25

PRITCHARD. Diseases of the Ear. 3d Edition. Many Illustrations and Formulæ. *In Press.*

ELECTRICITY.

- BIGELOW.** Plain Talks on Medical Electricity and Batteries. With a Therapeutic Index and a Glossary. 43 Illustrations. 2d Edition. \$1.00
- JONES.** Medical Electricity. 2d Edition. 112 Illustrations. \$2.50
- MASON.** Electricity; Its Medical and Surgical Uses. Numerous Illustrations. .75

EYE.

A Special Circular of Books on the Eye sent free upon application.

- ARLT.** Diseases of the Eye. Clinical Studies on Diseases of the Eye, Including the Conjunctiva, Cornea and Sclerotic, Iris and Ciliary Body. Authorized Translation by LYMAN WARE, M.D. Illustrated. \$1.25
- FICK.** Diseases of the Eye and Ophthalmoscopy. Translated by A. B. HALE, M. D. 157 Illustrations, many of which are in colors. *In Press.*
- FOX AND GOULD.** Compend on Diseases of the Eye and Refraction, Including Treatment and Surgery. 2d Edition. 71 Illustrations and 39 Formulæ. .80; Interleaved, \$1.25
- GOWERS.** Medical Ophthalmoscopy. A Manual and Atlas with Colored Autotype and Lithographic Plates and Wood-cuts, Comprising Original Illustrations of the Changes of the Eye in Diseases of the Brain, Kidney, etc. 3d Edition. \$4.00
- HARLAN.** Eyesight, and How to Care for It. Illus. .40
- HARTRIDGE.** Refraction. 96 Illustrations and Test Types. 7th Edition. \$1.00
- HARTRIDGE.** On the Ophthalmoscope. 2d Edition. With Colored Plate and many Wood-cuts. \$1.25
- HANSELL AND BELL.** Clinical Ophthalmology. Colored Plate of Normal Fundus and 120 Illustrations. \$1.50
- MACNAMARA.** On the Eye. 5th Edition. Numerous Colored Plates, Diagrams of Eye, Wood-cuts, and Test Types. \$3.50
- MEYER.** Ophthalmology. A Manual of Diseases of the Eye. Translated from the 3d French Edition by A. FREEDLAND FERGUS, M.B. 270 Illustrations, 2 Colored Plates. Cloth, \$3.50; Sheep, \$4.50
- MORTON.** Refraction of the Eye. Its Diagnosis and the Correction of its Errors. With Chapter on Keratotomy and Test Types. 5th Edition. \$1.00
- PHILLIPS.** Spectacles and Eyeglasses. Their Prescription and Adjustment. 2d Edition. 49 Illustrations. *Just Ready.* \$1.00
- SWANZY.** Diseases of the Eye and Their Treatment. 5th Edition, Revised. 166 Illustrations, 1 Plain Plate, and a Zephyr Test Card. Cloth, \$2.50; Sheep, \$3.00
- WALKER.** Students' Aid in Ophthalmology. Colored Plate and 40 other Illustrations and Glossary. *Just Ready.* \$1.50

FEVERS.

- COLLIE.** On Fevers. Their History, Etiology, Diagnosis, Prognosis, and Treatment. Colored Plates. \$2.00

GOUT AND RHEUMATISM.

- DUCKWORTH. A Treatise on Gout. With Chromo-lithographs and Engravings. Cloth, \$6.00
- GARROD. On Rheumatism. A Treatise on Rheumatism and Rheumatic Arthritis. Cloth, \$5.00
- HAIG. Causation of Disease by Uric Acid. A Contribution to the Pathology of High Arterial Tension, Headache, Epilepsy, Gout, Rheumatism, Diabetes, Bright's Disease, etc. *New Ed. In Press.*

HEADACHES.

- DAY. On Headaches. The Nature, Causes, and Treatment of Headaches. 4th Edition. Illustrated. \$1.00

HEALTH AND DOMESTIC MEDICINE (see also Hygiene and Nursing).

- BUCKLEY. The Skin in Health and Disease. Illus. .40
- BURNETT. Hearing and How to Keep It. Illustrated. .40
- COHEN. The Throat and Voice. Illustrated. .40
- DULLES. Emergencies. 4th Edition. Illustrated. \$1.00
- HARLAN. Eyesight and How to Care for It. Illustrated. .40
- HARTSHORNE. Our Homes. Illustrated. .40
- OSGOOD. The Winter and its Dangers. .40
- PACKARD. Sea Air and Bathing. .40
- PARKES. The Elements of Health. *Just Ready.* \$1.25
- RICHARDSON. Long Life and How to Reach It. .40
- WESTLAND. The Wife and Mother. \$1.50
- WHITE. The Mouth and Teeth. Illustrated. .40
- WILSON. The Summer and its Diseases. .40
- WOOD. Brain Work and Overwork. .40
- STARR. Hygiene of the Nursery. 4th Edition. \$1.00
- CANFIELD. Hygiene of the Sick-Room. \$1.25

HEART.

- SANSOM. Diseases of the Heart. The Diagnosis and Pathology of Diseases of the Heart and Thoracic Aorta. With Plates and other Illustrations. \$6.00

HISTOLOGY.

- STIRLING. Outlines of Practical Histology. 368 Illustrations. 2d Edition, Revised and Enlarged. With new Illustrations. \$2.00
- STÖHR. Histology and Microscopical Anatomy. Translated by A. SHAPER, M.D., Howard Medical School. 260 Illus. *In Press.*

HYGIENE AND WATER ANALYSIS.

Special Catalogue of Books on Hygiene sent free upon application.

CANFIELD. Hygiene of the Sick-Room. A Book for Nurses and Others Being a Brief Consideration of Asepsis, Antisepsis, Disinfection, Bacteriology, Immunity, Heating and Ventilation, and Kindred Subjects. \$1.25

COPLIN AND BEVAN. Practical Hygiene. A Complete American Text-Book. 138 Illustrations. \$3.25

FOX. Water, Air, and Food. Sanitary Examinations of Water, Air, and Food. 100 Engravings. 2d Edition, Revised. \$3.50

KENWOOD. Public Health Laboratory Work. 116 Illustrations and 3 Plates. \$2.00

LEFFMANN. Examination of Water for Sanitary and Technical Purposes. 3d Edition. Illustrated. *Just Ready.* \$1.25

LEFFMANN. Analysis of Milk and Milk Products. Illustrated. \$1.25

LINCOLN. School and Industrial Hygiene. .40

MACDONALD. Microscopical Examinations of Water and Air. 25 Lithographic Plates, Reference Tables, etc. 2d Ed. \$2.50

McNEILL. The Prevention of Epidemics and the Construction and Management of Isolation Hospitals. Numerous Plans and Illustrations. \$3.50

PARKES. Practical Hygiene. 8th Edition. Edited by J. Lane Notter. 10 Lithographic Plates and over 100 other Illustrations. \$4.50

PARKES. Hygiene and Public Health. By Louis C. Parkes, M.D. 4th Edition. Enlarged. Illustrated. \$2.50

PARKES. Popular Hygiene. The Elements of Health. A Book for Lay Readers. Illustrated. *Just Ready.* \$1.25

STARR. The Hygiene of the Nursery. Including the General Regimen and Feeding of Infants and Children, and the Domestic Management of the Ordinary Emergencies of Early Life, Massage, etc. 4th Edition. 25 Illustrations. \$1.00

STEVENSON AND MURPHY. A Treatise on Hygiene. By Various Authors. In Three Octave Volumes. Illustrated. Vol. I, \$6.00; Vol. II, \$6.00; Vol. III, \$5.00

*** Each Volume sold separately. Special Circular upon application.*

WILSON. Hand-Book of Hygiene and Sanitary Science. With Illustrations. 7th Edition. \$3.00

WEYL. Sanitary Relations of the Coal-Tar Colors. Authorized Translation by HENRY LEFFMANN, M.D., PH.D. \$1.25

*** Special Catalogue of Books on Hygiene free upon application.*

JOURNALS, ETC.

OPHTHALMIC REVIEW. A Monthly Record of Ophthalmic Science. Publ. in London. Sample number .25; per annum \$3.00

NEW SYDENHAM SOCIETY PUBLICATION. Three to six volumes each year. Circular upon application. Per annum \$8.00

KIDNEY DISEASES.

- RALFE.** Diseases of the Kidney and Urinary Derangements. Illustrated. \$2.00
- THORNTON.** The Surgery of the Kidney. 19 Illus. Clo., \$1.50
- TYSON.** Bright's Disease and Diabetes. With Especial Reference to Pathology and Therapeutics. Including a Section on Retinitis in Bright's Disease. Illustrated. \$2.50

LUNGS AND PLEURÆ.

- HARRIS AND BEALE.** Treatment of Pulmonary Consumption. \$2.50
- POWELL.** Diseases of the Lungs and Pleuræ, including Consumption. Colored Plates and other Illus. 4th Ed. \$4.00

MASSAGE.

- KLEEN AND HARTWELL.** Hand-Book of Massage. Authorized translation by **MUSSEY HARTWELL, M.D., PH.D.** With an Introduction by **Dr. S. WEIR MITCHELL.** Illustrated by a series of Photographs Made Especially by **DR. KLEEN** for the American Edition. \$2.25
- MURRELL.** Massotherapeutics. Massage as a Mode of Treatment. 5th Edition. \$1.25
- OSTROM.** Massage and the Original Swedish Movements. Their Application to Various Diseases of the Body. A Manual for Students, Nurses, and Physicians. Third Edition, Enlarged. 94 Wood Engravings, many of which are original. \$1.00

MATERIA MEDICA AND THERAPEUTICS.

- ALLEN, HARLAN, HARTE, VAN HARLINGEN.** A Hand-Book of Local Therapeutics, Being a Practical Description of all those Agents Used in the Local Treatment of Diseases of the Eye, Ear, Nose and Throat, Mouth, Skin, Vagina, Rectum, etc., such as Ointments, Plasters, Powders, Lotions, Inhalations, Suppositories, Bougies, Tampons, and the Proper Methods of Preparing and Applying Them. \$3.00
- BIDDLE.** Materia Medica and Therapeutics. Including Dose List, Dietary for the Sick, Table of Parasites, and Memoranda of New Remedies. 13th Edition, Thoroughly Revised in accordance with the new U. S. P. 64 Illustrations and a Clinical Index. Cloth, \$4.00; Sheep, \$5.00
- BRACKEN.** Outlines of Materia Medica and Pharmacology. By **H. M. BRACKEN,** Professor of Materia Medica and Therapeutics and of Clinical Medicine, University of Minnesota. \$2.75
- DAVIS.** Materia Medica and Prescription Writing. \$1.50
- FIELD.** Evacuant Medication. Cathartics and Emetics. \$1.75
- GORGAS.** Dental Medicine. A Manual of Materia Medica and Therapeutics. 5th Edition, Revised. \$4.00
- MAYS.** Therapeutic Forces; or, The Action of Medicine in the Light of Doctrine of Conservation of Force. \$1.25
- MAYS.** Theine in the Treatment of Neuralgia. ½ bound, .50

- NAPHEYS.** Modern Therapeutics. 9th Revised Edition, Enlarged and Improved. In two handsome volumes. Edited by ALLEN J. SMITH, M.D., and J. AUBREY DAVIS, M.D.
 Vol. I. General Medicine and Diseases of Children. \$4.00
 Vol. II. General Surgery, Obstetrics, and Diseases of Women. \$4.00
- POTTER.** Hand-Book of Materia Medica, Pharmacy, and Therapeutics, including the Action of Medicines, Special Therapeutics, Pharmacology, etc., including over 600 Prescriptions and Formulæ. 5th Edition, Revised and Enlarged. With Thumb Index in each copy. Cloth, \$4.00; Sheep, \$5.00
- POTTER.** Compend of Materia Medica, Therapeutics, and Prescription Writing, with Special Reference to the Physiological Action of Drugs. 6th Revised and Improved Edition, based upon the U. S. P. 1890. .80; Interleaved, \$1.25
- SAYRE.** Organic Materia Medica and Pharmacognosy. An Introduction to the Study of the Vegetable Kingdom and the Vegetable and Animal Drugs. Comprising the Botanical and Physical Characteristics, Source, Constituents, and Pharmacopeial Preparations. With chapters on Synthetic Organic Remedies, Insects Injurious to Drugs, and Pharmacal Botany. A Glossary and 543 Illustrations, many of which are original. \$4.00
- WARING.** Practical Therapeutics. 4th Edition, Revised and Rearranged. Cloth, \$2.00; Leather, \$3.00
- WHITE AND WILCOX.** Materia Medica, Pharmacy, Pharmacology, and Therapeutics. 3d American Edition, Revised by REYNOLD W. WILCOX, M.A., M.D., LL.D. Clo., \$2.75; Lea., \$3.25

MEDICAL JURISPRUDENCE AND TOXICOLOGY.

- REESE.** Medical Jurisprudence and Toxicology. A Text-Book for Medical and Legal Practitioners and Students. 4th Edition. Revised by HENRY LEFFMANN, M.D. Clo., \$3.00; Leather, \$3.50
 "To the student of medical jurisprudence and toxicology it is invaluable, as it is concise, clear, and thorough in every respect."—*The American Journal of the Medical Sciences.*
- MANN.** Forensic Medicine and Toxicology. Illus. \$6.50
- MURRELL.** What to Do in Cases of Poisoning. 7th Edition, Enlarged. \$1.00
- TANNER.** Memoranda of Poisons. Their Antidotes and Tests. 7th Edition. .75

MICROSCOPY.

- BEALE.** The Use of the Microscope in Practical Medicine. For Students and Practitioners, with Full Directions for Examining the Various Secretions, etc., by the Microscope. 4th Ed. 500 Illus. \$6.50
- BEALE.** How to Work with the Microscope. A Complete Manual of Microscopical Manipulation, containing a Full Description of many New Processes of Investigation, with Directions for Examining Objects Under the Highest Powers, and for Taking Photographs of Microscopic Objects. 5th Edition. 400 Illustrations, many of them colored. \$6.50
- CARPENTER.** The Microscope and Its Revelations. 7th Edition. 800 Illustrations and many Lithographs. \$5.50

- LEE. *The Microtometist's Vade Mecum. A Hand-Book of Methods of Microscopical Anatomy. 881 Articles. 4th Edition, Enlarged.* *In Press.*
- MACDONALD. *Microscopical Examinations of Water and Air. 25 Lithographic Plates, Reference Tables, etc. 2d Edition.* \$2.50
- REEVES. *Medical Microscopy, including Chapters on Bacteriology, Neoplasms, Urinary Examination, etc. Numerous Illustrations, some of which are printed in colors.* \$2.50
- WETHERED. *Medical Microscopy. A Guide to the Use of the Microscope in Practical Medicine. 100 Illustrations.* \$2.00

MISCELLANEOUS.

- BLACK. *Micro-Organisms. The Formation of Poisons. A Biological Study of the Germ Theory of Disease.* .75
- BURNETT. *Foods and Dietaries. A Manual of Clinical Dietetics. 2d Edition.* \$1.50
- DAVIS. *Biology. Illustrated.* \$3.00
- GOWERS. *The Dynamics of Life.* .75
- HAIG. *Causation of Disease by Uric Acid. A Contribution to the Pathology of High Arterial Tension, Headache, Epilepsy, Gout, Rheumatism, Diabetes, Bright's Disease, etc. New Ed. In Press.*
- HARE. *Mediastinal Disease. Illustrated by six Plates.* \$2.00
- HENRY. *A Practical Treatise on Anemia. Half Cloth,* .50
- LEFFMANN. *The Coal-Tar Colors. With Special Reference to their Injurious Qualities and the Restrictions of their Use. A Translation of THEODORE WEYL'S Monograph.* \$1.25
- TREVES. *Physical Education: Its Effects, Value, Methods, Etc.* .75
- LIZARS. *The Use and Abuse of Tobacco.* .40
- PARRISH. *Alcoholic Inebriety from a Medical Standpoint, with Cases.* \$1.00

NERVOUS DISEASES.

- GOWERS. *Manual of Diseases of the Nervous System. A Complete Text-Book. 2d Edition, Revised, Enlarged, and in many parts Rewritten. With many new Illustrations. Two volumes.*
- Vol. I. *Diseases of the Nerves and Spinal Cord.* \$3.00
- Vol. II. *Diseases of the Brain and Cranial Nerves; General and Functional Disease.* \$4.00
- GOWERS. *Syphilis and the Nervous System.* \$1.00
- GOWERS. *Diagnosis of Diseases of the Brain. 2d Edition. Illustrated.* \$1.50
- GOWERS. *Clinical Lectures. A New Volume of Essays on the Diagnosis, Treatment, etc., of Diseases of the Nervous System. Just Ready.* \$2.00
- FLOWER. *Diagram of the Nerves of the Human Body. Exhibiting their Origin, Divisions, and Connections, with their Distribution to the Various Regions of the Cutaneous Surface and to all the Muscles. 3d Edition. Six large Folio Maps or Diagrams.* \$2.50

- HORSLEY.** The Brain and Spinal Cord. The Structure and Functions of. Numerous Illustrations. \$2.50
- OBERSTEINER.** The Anatomy of the Central Nervous Organs. A Guide to the Study of their Structure in Health and Disease. 198 Illustrations. \$5.50
- ORMEROD.** Diseases of the Nervous System. 66 Wood Engravings. \$1.00
- OSLER.** Cerebral Palsies of Children. A Clinical Study. \$2.00
- OSLER.** Chorea and Choreiform Affections. \$2.00
- PAGE.** Injuries of the Spine and Spinal Cord. In their Surgical and Medico-legal Aspects. 3d Edition. *Preparing.*
- PAGE.** Railroad Injuries. With Special Reference to Those of the Back and Nervous System. \$2.25
- THORBURN.** Surgery of the Spinal Cord. Illustrated. \$4.00
- WATSON.** Concussions. An Experimental Study of Lesions Arising from Severe Concussions. Paper cover, \$1.00
- WOOD.** Brain Work and Overwork. .40

NURSING.

Special Catalogue of Books for Nurses sent free upon application.

- CANFIELD.** Hygiene of the Sick-Room. A Book for Nurses and Others. Being a Brief Consideration of Asepsis, Antisepsis, Disinfection, Bacteriology, Immunity, Heating and Ventilation, and Kindred Subjects for the Use of Nurses and Other Intelligent Women. \$1.25
- CULLINGWORTH.** A Manual of Nursing, Medical and Surgical. 3d Edition 18 Illustrations. .75
- CULLINGWORTH.** A Manual for Monthly Nurses. 3d Ed. .40
- DOMVILLE.** Manual for Nurses and Others Engaged in Attending the Sick. 7th Edition. With Recipes for Sick-room Cookery, etc. .75
- FULLERTON.** Obstetric Nursing. 40 Ills. 4th Ed. \$1.00
- FULLERTON.** Nursing in Abdominal Surgery and Diseases of Women. Comprising the Regular Course of Instruction at the Training-School of the Women's Hospital, Philadelphia. 2d Edition. 70 Illustrations. \$1.50
- HUMPHREY.** A Manual for Nurses. Including General Anatomy and Physiology, Management of the Sick-Room, etc. 13th Edition. Illustrated. \$1.00
- SHAWE.** Notes for Visiting Nurses, and all those Interested in the Working and Organization of District, Visiting, or Parochial Nurse Societies. With an Appendix Explaining the Organization and Working of Various Visiting and District Nurse Societies, by HELEN C. JENKS, of Philadelphia. \$1.00
- STARR.** The Hygiene of the Nursery. Including the General Regimen and Feeding of Infants and Children, and the Domestic Management of the Ordinary Emergencies of Early Life, Massage, etc. 4th Edition. 25 Illustrations. \$1.00
- TEMPERATURE CHARTS.** For Recording Temperature, Respiration, Pulse, Day of Disease, Date, Age, Sex, Occupation, Name, etc. Put up in pads of fifty. Each .50
- VOSWINKEL.** Surgical Nursing. 111 Illustrations. \$1.00

*** Special Catalogue of Books on Nursing free upon application.*

OBSTETRICS.

- BAR.** Antiseptic Midwifery. The Principles of Antiseptic Methods Applied to Obstetric Practice. Authorized Translation by HENRY D. FRY, M.D., with an Appendix by the Author. \$1.00
- CAZEAUX AND TARNIER.** Midwifery. With Appendix by MUNDÉ. The Theory and Practice of Obstetrics, including the Diseases of Pregnancy and Parturition, Obstetrical Operations, etc. 8th Edition. Illustrated by Chromo-Lithographs, Lithographs, and other full-page Plates, seven of which are beautifully colored, and numerous Wood Engravings. Cloth, \$4.50; Full Leather, \$5.50
- DAVIS.** A Manual of Obstetrics. Being a Complete Manual for Physicians and Students. 2d Edition. 16 Colored and other Plates and 134 other Illustrations. \$2.00
- LANDIS.** Compend of Obstetrics. 5th Edition, Revised by WM. H. WELLS, Assistant Demonstrator of Clinical Obstetrics, Jefferson Medical College. With many Illustrations, .80; Interleaved, \$1.25.
- SCHULTZE.** Obstetrical Diagrams. Being a series of 20 Colored Lithograph Charts, Imperial Map Size, of Pregnancy and Midwifery, with accompanying explanatory (German) text illustrated by Wood Cuts. 2d Revised Edition.
Price in Sheets, \$26.00; Mounted on Rollers, Muslin Backs, \$36.00
- STRAHAN.** Extra-Uterine Pregnancy. The Diagnosis and Treatment of Extra-Uterine Pregnancy. .75
- WINCKEL.** Text-Book of Obstetrics, Including the Pathology and Therapeutics of the Puerperal State. Authorized Translation by J. CLIFTON EDGAR, A.M., M.D. With nearly 200 Illustrations. Cloth, \$5.00; Leather, \$6.00
- FULLERTON.** Obstetric Nursing. 4th Ed. Illustrated. \$1.00
- SHIBATA.** Obstetrical Pocket-Phantom with Movable Child and Pelvis. Letter Press and Illustrations. \$1.00

PATHOLOGY.

- BLACKBURN.** Autopsies. A Manual of Autopsies Designed for the Use of Hospitals for the Insane and other Public Institutions. Ten full-page Plates and other Illustrations. \$1.25
- BLODGETT.** Dental Pathology. By ALBERT N. BLODGETT, M.D., late Professor of Pathology and Therapeutics, Boston Dental College. 33 Illustrations. \$1.25
- GILLIAM.** Pathology. A Hand-Book for Students. 47 Illus. .75
- HALL.** Compend of General Pathology and Morbid Anatomy. 91 very fine Illustrations. .80; Interleaved, \$1.25
- VIRCHOW.** Post-Mortem Examinations. A Description and Explanation of the Method of Performing Them in the Dead House of the Berlin Charity Hospital, with Special Reference to Medico-Legal Practice. 3d Edition, with Additions. .75

PHARMACY.

Special Catalogue of Books on Pharmacy sent free upon application.

- COBLENTZ.** Manual of Pharmacy. A New and Complete Text-Book by the Professor in the New York College of Pharmacy. 2d Edition, Revised and Enlarged. 437 Illustrations. \$3.50

- BEASLEY.** Book of 3100 Prescriptions. Collected from the Practice of the Most Eminent Physicians and Surgeons—English, French, and American. A Compendious History of the Materia Medica, Lists of the Doses of all the Officinal and Established Preparations, an Index of Diseases and their Remedies. 7th Ed. \$2.00
- BEASLEY.** Druggists' General Receipt Book. Comprising a Copious Veterinary Formulary, Recipes in Patent and Proprietary Medicines, Druggists' Nostrums, etc.; Perfumery and Cosmetics, Beverages, Dietetic Articles and Condiments, Trade Chemicals, Scientific Processes, and an Appendix of Useful Tables. 10th Edition, Revised. \$2.00
- BEASLEY.** Pocket Formulary. A Synopsis of the British and Foreign Pharmacopœias. Comprising Standard and Approved Formulæ for the Preparations and Compounds Employed in Medical Practice. 11th Edition. \$2.00
- PROCTOR.** Practical Pharmacy. Lectures on Practical Pharmacy. With Wood Engravings and 32 Lithographic Fac-simile Prescriptions. 3d Edition, Revised, and with Elaborate Tables of Chemical Solubilities, etc. \$3.00
- ROBINSON.** Latin Grammar of Pharmacy and Medicine. 2d Edition. With elaborate Vocabularies. \$1.75
- SAYRE.** Organic Materia Medica and Pharmacognosy. An Introduction to the Study of the Vegetable Kingdom and the Vegetable and Animal Drugs. Comprising the Botanical and Physical Characteristics, Source, Constituents, and Pharmacopœial Preparations. With Chapters on Synthetic Organic Remedies, Insects Injurious to Drugs, and Pharmacal Botany. A Glossary and 543 Illustrations, many of which are original. \$4.00
- SCOVILLE.** The Art of Compounding. A Text-Book for the Student and a Reference Book for the Pharmacist. \$2.50
- STEWART.** Compend of Pharmacy. Based upon "Remington's Text-Book of Pharmacy." 5th Edition, Revised in Accordance with the U. S. Pharmacopœia, 1890. Complete Tables of Metric and English Weights and Measures. .80; Interleaved, \$1.25
- UNITED STATES PHARMACOPŒIA.** 1890. 7th Decennial Revision. Cloth, \$2.50 (postpaid, \$2.77); Sheep, \$3.00 (postpaid, \$3.27); Interleaved, \$4.00 (postpaid, \$4.50); Printed on one side of page only, unbound, \$3.50 (postpaid, \$3.90).
- Select Tables from the U. S. P. (1890). Being Nine of the Most Important and Useful Tables, Printed on Separate Sheets. Carefully put up in patent envelope. .25
- WHITE AND WILCOX.** Materia Medica, Pharmacy, Pharmacology, and Therapeutics. 2d American Edition. Revised by REYNOLD W. WILCOX, M.D., LL.D. Cloth, \$2 75; Leather, \$3.25
- POTTER.** Hand-Book of Materia Medica, Pharmacy, and Therapeutics. 600 Prescriptions and Formulæ. 5th Edition. Cloth, \$4.00; Sheep, \$5.00

*** Special Catalogue of Books on Pharmacy free upon application.*

PHYSICAL DIAGNOSIS.

- TYSON.** Hand-Book of Physical Diagnosis. For Students and Physicians. By the Professor of Clinical Medicine in the University of Pennsylvania. Illus. 2d Ed., Improved and Enlarged. \$1.25
- MEMMINGER.** Diagnosis by the Urine. 23 Illus. \$1.00

PHYSIOLOGY.

- BRUBAKER.** Compend of Physiology. 7th Edition, Revised and Illustrated. .80; Interleaved, \$1.25
- KIRKE.** Physiology. (13th Authorized Edition. Dark Red Cloth.) A Hand-Book of Physiology. 13th London Edition, Revised and Enlarged. 516 Illustrations, some of which are printed in colors. Cloth, \$3.25; Leather, \$4.00
- LANDOIS.** A Text-Book of Human Physiology, Including Histology and Microscopical Anatomy, with Special Reference to the Requirements of Practical Medicine. 5th American, translated from the 9th German Edition, with Additions by WM. STIRLING, M.D., D.SC. 845 Illus., many of which are printed in colors. *In Press.*
- STARLING.** Elements of Human Physiology. 100 Ills. \$1.00
- STIRLING.** Outlines of Practical Physiology. Including Chemical and Experimental Physiology, with Special Reference to Practical Medicine. 3d Edition. 289 Illustrations. \$2.00
- TYSON.** Cell Doctrine. Its History and Present State. 2d Edition. \$1.50
- YEO.** Manual of Physiology. A Text-Book for Students of Medicine. By GERALD F. YEO, M.D., F.R.C.S. 6th Edition. 254 Illustrations and a Glossary. Cloth, \$2.50; Leather, \$3.00

PRACTICE.

- BEALE.** On Slight Ailments; their Nature and Treatment. 2d Edition, Enlarged and Illustrated. \$1.25
- CHARTERIS.** Practice of Medicine. 6th Edition. Therapeutical Index and Illustrations. \$2.00
- FOWLER.** Dictionary of Practical Medicine. By various writers. An Encyclopædia of Medicine. Clo., \$3.00; Half Mor. \$4.00
- HUGHES.** Compend of the Practice of Medicine. 5th Edition, Revised and Enlarged.
- Part I. Continued, Eruptive, and Periodical Fevers, Diseases of the Stomach, Intestines, Peritoneum, Biliary Passages, Liver, Kidneys, etc., and General Diseases, etc.
- Part II. Diseases of the Respiratory System, Circulatory System, and Nervous System; Diseases of the Blood, etc.
- Price of each part, .80; Interleaved, \$1.25
- Physician's Edition.** In one volume, including the above two parts, a Section on Skin Diseases, and an Index. 5th Revised, Enlarged Edition. 568 pp. Full Morocco, Gilt Edge, \$2.25
- ROBERTS.** The Theory and Practice of Medicine. The Sections on Treatment are especially exhaustive. 9th Edition, with Illustrations. Cloth, \$4.50; Leather, \$5.50
- TAYLOR.** Practice of Medicine. Cloth, \$2.00; Sheep, \$2.50

PRESCRIPTION BOOKS.

- BEASLEY.** Book of 3100 Prescriptions. Collected from the Practice of the Most Eminent Physicians and Surgeons—English, French, and American. A Compendious History of the Materia Medica, Lists of the Doses of all Officinal and Established Preparations, and an Index of Diseases and their Remedies. 7th Ed. \$2.00

- BEASLEY.** Druggists' General Receipt Book. Comprising a Copious Veterinary Formulary, Recipes in Patent and Proprietary Medicines, Druggists' Nostrums, etc.; Perfumery and Cosmetics, Beverages, Dietetic Articles and Condiments, Trade Chemicals, Scientific Processes, and an Appendix of Useful Tables. 10th Edition, Revised. \$2.00
- BEASLEY.** Pocket Formulary. A Synopsis of the British and Foreign Pharmacopœias. Comprising Standard and Approved Formulæ for the Preparations and Compounds Employed in Medical Practice. 11th Edition. Cloth, \$2.00
- PEREIRA.** Prescription Book. Containing Lists of Terms, Phrases, Contractions, and Abbreviations Used in Prescriptions, Explanatory Notes, Grammatical Construction of Prescriptions, etc. 16th Edition. Cloth, .75; Tucks, \$1.00
- WYTHER.** Dose and Symptom Book. The Physician's Pocket Dose and Symptom Book. Containing the Doses and Uses of all the Principal Articles of the Materia Medica and Official Preparations. 17th Ed. Cloth, .75; Leather, with Tucks and Pocket, \$1.00

SKIN.

- BULKLEY.** The Skin in Health and Disease. Illustrated. .40
- CROCKER.** Diseases of the Skin. Their Description, Pathology, Diagnosis, and Treatment, with Special Reference to the Skin Eruptions of Children. 92 Illus. 2d Edition. Enlarged. \$4.50
- VAN HARLINGEN.** On Skin Diseases. A Practical Manual of Diagnosis and Treatment, with special reference to Differential Diagnosis. 3d Edition, Revised and Enlarged. With Formulæ and 60 Illustrations, some of which are printed in colors. \$2.75

SURGERY AND SURGICAL DISEASES.

- CAIRD AND CATHCART.** Surgical Hand-Book. 5th Edition, Revised. 188 Illustrations. Full Red Morocco, \$2.50
- DEAVER.** Appendicitis, Its Symptoms, Diagnosis, Pathology, Treatment, and Complications. Elaborately Illustrated. *In Press.*
- DEAVER.** Surgical Anatomy. With 200 Illustrations, Drawn by a Special Artist from Directions made for the Purpose. *In Preparation.*
- DULLES.** What to Do First in Accidents and Poisoning. 4th Edition. New Illustrations. \$1.00
- HACKER.** Antiseptic Treatment of Wounds, Introduction to the, According to the Method in Use at Professor Billroth's Clinic, Vienna. With a Photo-engraving of Billroth in his Clinic. .50
- HEATH.** Minor Surgery and Bandaging. 10th Ed Revised and Enlarged. 158 Illustrations, 62 Formulæ, Diet List, etc. \$1.25
- HEATH.** Injuries and Diseases of the Jaws. 4th Edition. 187 Illustrations. \$4.50
- HEATH.** Lectures on Certain Diseases of the Jaws. 64 Illustrations. Boards, .50
- HORWITZ.** Compend of Surgery and Bandaging, including Minor Surgery, Amputations, Fractures, Dislocations, Surgical Diseases, and the Latest Antiseptic Rules, etc., with Differential Diagnosis and Treatment. 5th Edition, very much Enlarged and Rearranged. 167 Illustrations, 98 Formulæ. Clo., .80; Interleaved, \$1.25

- JACOBSON.** Operations of Surgery. Over 200 Illustrations.
Cloth, \$3.00; Leather, \$4.00
- JACOBSON.** Diseases of the Male Organs of Generation.
88 Illustrations. \$6.00
- MACREADY.** A Treatise on Ruptures. 24 Full-page Litho-
graphed Plates and Numerous Wood Engravings. Cloth, \$6.00
- MOULLIN.** Text-Book of Surgery. With Special Reference to
Treatment. 3d American Edition. Revised and edited by JOHN B.
HAMILTON, M.D., LL.D., Professor of the Principles of Surgery and
Clinical Surgery, Rush Medical College, Chicago. 623 Illustrations,
over 200 of which are original, and many of which are printed in
colors. *Just Ready.* Handsome Cloth, \$6.00; Leather, \$7.00
- "The aim to make this valuable treatise practical by giving special
attention to questions of treatment has been admirably carried out.
Many a reader will consult the work with a feeling of satisfaction that
his wants have been understood, and that they have been intelligently
met."—*The American Journal of Medical Science.*
- PORTER.** Surgeon's Pocket-Book. 3d Ed. Lea. Cover, \$2.00.
- SMITH.** Abdominal Surgery. Being a Systematic Description of
all the Principal Operations. 80 Illus. 5th Edition. *In Press.*
- SWAIN.** Surgical Emergencies. New Edition. *In Press.*
- VOSWINKEL.** Surgical Nursing. 111 Illustrations. \$1.00
- WALSHAM.** Manual of Practical Surgery. 5th Ed., Re-
vised and Enlarged. With 380 Engravings. Clo., \$2.75; Lea., \$3.25
- WATSON.** On Amputations of the Extremities and Their
Complications. 250 Illustrations. \$5.50

THROAT AND NOSE (see also Ear).

- COHEN.** The Throat and Voice. Illustrated. .40
- HALL.** Diseases of the Nose and Throat. Two Colored
Plates and 59 Illustrations. \$2.50
- HALL.** Compend of Diseases of the Ear and Nose. Illus-
trated. .80; Interleaved, \$1.25
- HUTCHINSON.** The Nose and Throat. Including the Nose,
Naso-Pharynx, Pharynx, and Larynx. Illustrated by Lithograph
Plates and 40 other Illustrations. 2d Edition. *In Press.*
- MACKENZIE.** The Pharmacopœia of the London Hospital
for Diseases of the Throat. 5th Edition, Revised by Dr. F.
G. HARVEY. \$1.00
- McBRIDE.** Diseases of the Throat, Nose, and Ear. A Clinical
Manual. With colored Illus. from original drawings. 2d Ed. \$6.00
- MURRELL.** Chronic Bronchitis and its Treatment. (Author-
ized Edition.) A Clinical Study. \$1.50
- POTTER.** Speech and its Defects. Considered Physiologically,
Pathologically, and Remedially. \$1.00
- WOAKES.** Post-Nasal Catarrh and Diseases of the Nose
Causing Deafness. 26 Illustrations. \$1.00

URINE AND URINARY ORGANS.

- ACTON.** The Functions and Disorders of the Reproductive
Organs in Childhood, Youth, Adult Age, and Advanced Life,
Considered in their Physiological, Social, and Moral Relations.
8th Edition. \$1.75

- ALLEN. Albuminous and Diabetic Urine. Illus. \$2.25
- BEALE. One Hundred Urinary Deposits. On eight sheets, for the Hospital, Laboratory, or Surgery. Paper, \$2.00
- HOLLAND. The Urine, the Gastric Contents, the Common Poisons, and the Milk. Memoranda, Chemical and Microscopical, for Laboratory Use. Illustrated and Interleaved. 5th Ed. \$1.00
- LEGG. On the Urine. 7th Edition, Enlarged. Illus. \$1.00
- MEMMINGER. Diagnosis by the Urine. 23 Illus. \$1.00
- MOULLIN. Enlargement of the Prostate. Its Treatment and Radical Cure. Illustrated. \$1.50
- THOMPSON. Diseases of the Urinary Organs. 8th Ed. \$3.00
- THOMPSON. Calculous Diseases. The Preventive Treatment of, and the Use of Solvent Remedies. 3d Edition. .75
- TYSON. Guide to Examination of the Urine. For the Use of Physicians and Students. With Colored Plate and Numerous Illustrations engraved on wood. 9th Edition, Revised. \$1.25
- VAN NUYS. Chemical Analysis of Healthy and Diseased Urine, Qualitative and Quantitative. 39 Illustrations. \$1.00

VENEREAL DISEASES.

- COOPER. Syphilis. 2d Edition, Enlarged and Illustrated with 20 full-page Plates. \$5.00
- GOWERS. Syphilis and the Nervous System. \$1.00
- HILL AND COOPER. Venereal Diseases. Being a Concise Description of Those Affections and Their Treatment. 4th Ed. .75
- JACOBSON. Diseases of the Male Organs of Generation. 88 Illustrations. \$6.00

VETERINARY.

- ARMATAGE. The Veterinarian's Pocket Remembrancer. Being Concise Directions for the Treatment of Urgent or Rare Cases, Embracing Semeiology, Diagnosis, Prognosis, Surgery, Treatment, etc. 2d Edition. Boards, \$1.00
- BALLOU. Veterinary Anatomy and Physiology. 29 Graphic Illustrations. .80; Interleaved, \$1.25
- TUSON. Veterinary Pharmacopœia. Including the Outlines of Materia Medica and Therapeutics. 5th Edition. \$2.25

WOMEN, DISEASES OF.

- BYFORD (H. T.). Manual of Gynecology. With 234 Illustrations, many of which are from original drawings. *Just Ready.* \$2.50
- BYFORD (W. H.). Diseases of Women. 4th Edition. 306 Illustrations. Cloth, \$2.00; Leather, \$2.50
- DÜHRSEN. A Manual of Gynecological Practice. 105 Illustrations. *Just Ready.* \$1.50
- LEWERS. Diseases of Women. 146 Illus. 3d Edition. \$2.00
- WELLS. Compend of Gynecology. Illus. .80; Interleaved, \$1.25
- WINCKEL. Diseases of Women. Translated by special authority of Author, under the Supervision of, and with an Introduction by, THEOPHILUS PARVIN, M.D. 152 Engravings on Wood. 3d Edition, Revised. *In Preparation.*
- FULLERTON. Nursing in Abdominal Surgery and Diseases of Women. 2d Edition. 70 Illustrations. \$1.50

COMPENDS.

From The Southern Clinic.

"We know of no series of books issued by any house that so fully meets our approval as these ?Quiz-Compend??. They are well arranged, full, and concise, and are really the best line of text-books that could be found for either student or practitioner."

BLAKISTON'S ?QUIZ-COMPENDS?

The Best Series of Manuals for the Use of Students.

Price of each, Cloth, .80. Interleaved, for taking Notes, \$1.25.

☞ These Compends are based on the most popular text-books and the lectures of prominent professors, and are kept constantly revised, so that they may thoroughly represent the present state of the subjects upon which they treat.

☞ The authors have had large experience as Quiz-Masters and attaches of colleges, and are well acquainted with the wants of students.

☞ They are arranged in the most approved form, thorough and concise, containing over 600 fine illustrations, inserted wherever they could be used to advantage.

☞ Can be used by students of *any* college.

☞ They contain information nowhere else collected in such a condensed, practical shape. Illustrated Circular free.

No. 1. POTTER. HUMAN ANATOMY. Fifth Revised and Enlarged Edition. Including Visceral Anatomy. Can be used with either Morris's or Gray's Anatomy. 117 Illustrations and 16 Lithographic Plates of Nerves and Arteries, with Explanatory Tables, etc. By SAMUEL O. L. POTTER, M.D., Professor of the Practice of Medicine, Cooper Medical College, San Francisco; late A. A. Surgeon, U. S. Army.

No. 2. HUGHES. PRACTICE OF MEDICINE. Part I. Fifth Edition, Enlarged and Improved. By DANIEL E. HUGHES, M.D., Physician-in-Chief, Philadelphia Hospital, late Demonstrator of Clinical Medicine, Jefferson Medical College, Phila.

No. 3. HUGHES. PRACTICE OF MEDICINE. Part II. Fifth Edition, Revised and Improved. Same author as No. 2.

No. 4. BRUBAKER. PHYSIOLOGY. Seventh Edition, with new Illustrations and a table of Physiological Constants. Enlarged and Revised. By A. P. BRUBAKER, M.D., Professor of Physiology and General Pathology in the Pennsylvania College of Dental Surgery; Demonstrator of Physiology, Jefferson Medical College, Philadelphia.

No. 5. LANDIS. OBSTETRICS. Fifth Edition. By HENRY G. LANDIS, M.D. Revised and Edited by WM. H. WELLS, M.D., Assistant Demonstrator of Obstetrics, Jefferson Medical College, Philadelphia. Enlarged. 47 Illustrations.

No. 6. POTTER. MATERIA MEDICA, THERAPEUTICS, AND PRESCRIPTION WRITING. Sixth Revised Edition (U. S. P. 1890). By SAMUEL O. L. POTTER, M.D., Professor of Practice, Cooper Medical College, San Francisco; late A. A. Surgeon, U. S. Army.

? QUIZ-COMPENDS ?—Continued.

- No. 7. WELLS. GYNECOLOGY. A New Book.** By WM. H. WELLS, M.D., Assistant Demonstrator of Obstetrics, Jefferson College, Philadelphia. Illustrated.
- No. 8. FOX AND GOULD. DISEASES OF THE EYE AND REFRACTION.** Second Edition. Including Treatment and Surgery. By L. WEBSTER FOX, M.D., and GEORGE M. GOULD, M.D. With 39 Formulæ and 71 Illustrations.
- No. 9. HORWITZ. SURGERY, Minor Surgery, and Bandaging.** Fifth Edition, Enlarged and Improved. By ORVILLE HORWITZ, B.S., M.D., Clinical Professor of Genito-Urinary Surgery and Venereal Diseases in Jefferson Medical College; Surgeon to Philadelphia Hospital, etc. With 98 Formulæ and 71 Illustrations.
- No. 10. LEFFMANN. MEDICAL CHEMISTRY.** Fourth Edition. Including Urinalysis, Animal Chemistry, Chemistry of Milk, Blood, Tissues, the Secretions, etc. By HENRY LEFFMANN, M.D., Professor of Chemistry in Pennsylvania College of Dental Surgery and in the Woman's Medical College, Philadelphia.
- No. 11. STEWART. PHARMACY.** Fifth Edition. Based upon Prof. Remington's Text-Book of Pharmacy. By F. E. STEWART, M.D., PH.G., late Quiz-Master in Pharmacy and Chemistry, Philadelphia College of Pharmacy; Lecturer at Jefferson Medical College. Carefully revised in accordance with the new U. S. P.
- No. 12. BALLOU. VETERINARY ANATOMY AND PHYSIOLOGY.** Illustrated. By WM. R. BALLOU, M.D., Professor of Equine Anatomy at New York College of Veterinary Surgeons; Physician to Bellevue Dispensary, etc. 29 graphic Illustrations.
- No. 13. WARREN. DENTAL PATHOLOGY AND DENTAL MEDICINE.** Second Edition; Illustrated. Containing all the most noteworthy points of interest to the Dental Student and a Section on Emergencies. By GEO. W. WARREN, D.D.S., Chief of Clinical Staff, Pennsylvania College of Dental Surgery, Philadelphia.
- No. 14. HATFIELD. DISEASES OF CHILDREN.** Second Edition. Colored Plate. By MARCUS P. HATFIELD, Professor of Diseases of Children, Chicago Medical College.
- No. 15. HALL. GENERAL PATHOLOGY AND MORBID ANATOMY.** 91 Illustrations. By H. NEWBERRY HALL, PH.G., M.D., Professor of Pathology and Med. Chem., Chicago Post-Graduate Medical School; Mem. Surgical Staff, Illinois Charitable Eye and Ear Infirmary; Chief of Ear Clinic, Chicago Med. College.
- No. 16. DISEASES OF NOSE AND EAR.** Illustrated. Same Author as No. 15.

Price, each, Cloth, .80. Interleaved, for taking Notes, \$1.25.

Handsome Illustrated Circular sent free upon application.

In preparing, revising, and improving BLAKISTON'S ? QUIZ-COMPENDS ? the particular wants of the student have always been kept in mind.

Careful attention has been given to the construction of each sentence, and while the books will be found to contain an immense amount of knowledge in small space, they will likewise be found easy reading; there is no stilted repetition of words; the style is clear, lucid, and distinct. The arrangement of subjects is systematic and thorough; there is a reason for every word. They contain over 600 illustrations.

Moullin's Surgery.

Third Edition,
Just Ready.

EDITED BY

JOHN B. HAMILTON, M.D.,

Professor of the Principles of Surgery and Clinical Surgery,
Rush Medical College, Chicago, etc.

This is not only the latest, but the most uniform and complete one-volume Text-Book of Surgery. The relative value of each subject has been carefully considered, the constant aim of author and editor having been to make it practical and useful. It is systematically arranged and pays special attention to treatment.

Royal 8vo. 1250 Pages. 600 Illustrations.

Cloth, net, \$6.00. Sheep, net, \$7.00.

. Illustrated circular free upon application.

Fifth Revised Edition, Potter's Therapeutics.

A UNIQUE BOOK.

POTTER'S MATERIA MEDICA, PHARMACY, AND THERAPEUTICS. Fifth Edition. Revised in accordance with new U. S. P. A Hand-Book; including the Physiological Action of Drugs, Special Therapeutics of Diseases, Official and Extemporaneous Pharmacy, etc. By S. O. L. POTTER, M.A., M.D., Professor of the Practice of Medicine in Cooper Medical College, San Francisco, etc. Octavo. 800 pages. Thumb Index. Cloth, \$4.00; Leather, \$5.00

DR. POTTER has become well known as an able compiler, by his Compendes of Anatomy, and of Materia Medica, both of which have reached four editions. In this book, more elaborate in its design, he has shown his literary abilities to much better advantage, and all who examine or use it will agree that he has produced a work containing more correct information in a practical, concise form than any other publication of the kind. The plan of the work is new, and its contents have been combined and arranged in such a way that it offers a compact statement of the subject in hand.

PART I.—MATERIA MEDICA and THERAPEUTICS, the drugs being arranged in alphabetical order, with the synonym of each first; then the description of the plant, its preparations, physiological action, and lastly its *Therapeutics*. This part is preceded by a section on the classification of medicines as follows: Agents acting on the Nervous System, Organs of Sense, Respiration, Circulation, Digestive System, on Metabolism (including Restoratives, Alteratives, Astringents, Antipyretics, Antiphlogistics and Antiperiodics, etc.). Agents acting upon Excretion, the Generative System, the Cutaneous Surfaces, Microbes and Ferments, and upon each other.

PART II.—PHARMACY AND PRESCRIPTION WRITING. Written for the use of physicians who put up their own prescriptions. It includes—Weights and Measures, English and the Metric Systems. Specific Gravity and Volume. Prescriptions.—Their principles and combinations; proper methods of writing them; abbreviations used, etc. Stock solutions and preparations, such as a doctor should have to compound his own prescriptions. Incompatibility, Pharmaceutical and Therapeutical. Liquid, Solid and Gaseous Extemporaneous Prescriptions.

PART III.—SPECIAL THERAPEUTICS, an alphabetical List of Diseases—a real INDEX OF DISEASES—giving the drugs that have been found serviceable in each disease, and the authority recommending the use of each; a very important feature, as it gives an authoritative character to the book that is unusual in works on Therapeutics, and displays an immense amount of research on the part of the author. 600 prescriptions are given in this part, many being over the names of eminent men.

THE APPENDIX contains lists of Latin words, phrases and abbreviations, with their English equivalents, used in medicine, Genitive Case Endings, etc. 36 Formulæ for Hypodermic Injections; a comparison of 10 Formulæ of Chlorodyne; Formulæ of prominent patent medicines; Poisons and their Antidotes; Differential Diagnosis; Notes on Temperature in Disease; Obstetrical Memoranda; Clinical Examination of Urine; Medical Ethics; Table of Specific Gravities and Volumes; Table showing the number of drops in a fluidrachm of various liquids and the weight of one fluidrachm in grains, and a table for converting apothecaries' weights and measures into grams.

THE PRICE OF THIS BOOK IS NET.

Medical Students' Manuals.

The prices of all our books are absolutely net.

VAN HARLINGEN. SKIN DISEASES. Third Edition. The Diagnosis (including Differential Diagnosis) and Treatment of Skin Diseases. By ARTHUR VAN HARLINGEN, late Lecturer Jefferson Medical College, Professor of Dermatology, Philadelphia Polyclinic, etc. Third Edition. Enlarged by about 100 pages. 60 Illustrations. Cloth, \$2.75

Following a short introduction devoted to symptomatology, classification, etc., each disease is taken up in alphabetical order; special attention is given to treatment, and there are a number of tables of differential diagnosis that will prove particularly useful.

A great deal of new material has been added to this edition; some of the old sections have been entirely rewritten, and many new methods of treatment with accompanying formulæ have been incorporated.

WALSHAM. SURGERY. Third Edition. Manual of the Practice of Surgery. By WM. J. WALSHAM, M.D., Assistant Surgeon to, and Lecturer on Anatomy at, St. Bartholomew's Hospital, London, etc. 318 Illustrations. Cloth, \$2.75; Sheep, \$3.25

"Walsham, besides being an excellent surgeon, is a teacher in its best sense, and having had very great experience in the preparation of candidates for examination, and their subsequent professional career, may be relied upon to have carried out his work successfully. Without following out in detail his arrangement, which is excellent, we can at once say that his book is an embodiment of modern ideas neatly strung together, with an amount of careful organization well suited to the candidate, and, indeed, to the practitioner."—*British Medical Journal*.

HOLDEN'S MANUAL OF DISSECTIONS. Sixth Edition. 311 Illustrations. By JOHN LANGTON, F.R.C.S., Lecturer on Anatomy, St. Bartholomew's Hospital. Revised by A. HEWSON, M.D., Demonstrator of Anatomy, Jefferson Medical College; Chief of Surgical Clinic, Jefferson Hospital; Mem. Assoc. Amer. Anatomists, etc.

Bound in Oil-Cloth, \$2.50; Regular Cloth, \$2.50; Sheep, \$3.00

"The work before us is a brilliant example of the new order of text-books. * * * We would call special attention to the character of the illustrations with which the volume is bountifully furnished."—*American Journal of Medical Sciences*.

WHITE and WILCOX. MATERIA MEDICA, PHARMACY, PHARMACOLOGY, AND THERAPEUTICS. Third Edition. By WILLIAM HALE WHITE, M.D., F.R.C.P., etc., Physician to, and Lecturer on Materia Medica, Guy's Hospital; Examiner in Materia Medica, Royal College of Physicians, London, etc. Third American Edition. Revised in accordance with new U. S. P. by REYNOLD W. WILCOX, M.A., M.D., Professor of Clinical Medicine at the New York Post-Graduate Medical School and Hospital; Assistant Visiting Physician Bellevue Hospital. Cloth, \$2.75

"Practical experience with Dr. White's book on general therapeutics, both as to its usefulness to the student and as to the soundness of the advice which he gives, has proved that he is an author upon whom much dependence may be placed, and a careful examination of the American version of his second work, which has been published under Dr. Wilcox's eye, shows that it is also worthy of both its author and editor."—*Therapeutic Gazette*.

SEE NEXT PAGE.

P. BLAKISTON, SON & CO., Publishers and Booksellers,

1012 WALNUT STREET, PHILADELPHIA.

Medical Students' Manuals—*Continued.*

REESE. MEDICAL JURISPRUDENCE AND TOXICOLOGY.

Fourth Edition. By JOHN J. REESE, M.D., Professor of Medical Jurisprudence and Toxicology, University of Pennsylvania, etc. Cloth, \$3.00

"The production of this admirable text-book by one of the two or three leading teachers of medical jurisprudence in America will, we hope, give a new impetus to the study of forensic medicine, which, inviting and important as it is, has heretofore been strangely neglected in both legal and medical schools."—*American Journal of the Medical Sciences.*

SWANZY. DISEASES OF THE EYE. Fourth Edition, Enlarged and Improved. Diseases of the Eye and their Treatment. A Handbook for Physicians and Students. By HENRY S. SWANZY, A.M., M.B., F.R.C.S.I., Surgeon to the National Eye and Ear Infirmary; Ophthalmic Surgeon to the Adelaide Hospital, Dublin. Thoroughly Revised. 170 Illustrations. Cloth, \$2.50; Sheep, \$3.00

"Mr. Swanzy has succeeded in producing the most intellectually conceived and thoroughly executed *resumé* of the science within the limits he has assigned himself. As a 'students' hand-book,' small in size and moderate in price, it can hardly be equaled."—*Medical News.*

STEARNS. MENTAL DISEASES. Illustrated. Lectures on Mental Diseases, designed especially for Medical Students and General Practitioners. By HENRY PUTNAM STEARNS, M.D., Physician Superintendent at the Hartford Retreat; Lecturer on Mental Diseases in Yale University; Member of the American Medico-Psychological Association; Honorary Member of the Boston Medico-Psychological Society. With a Digest of Laws of the Various States Relating to the Care of the Insane. Cloth, \$3.00

YEO. PHYSIOLOGY. Sixth Edition. By GERALD F. YEO, M.D., F.R.C.S., Professor of Physiology in King's College, London. 321 carefully printed Illustrations. Cloth, \$2.50; Sheep, \$3.00

"The work will take a high rank among the smaller text-books of Physiology."—*Prof. H. P. Bowditch, Harvard Medical School.*

"By his excellent manual, Prof. Yeo has supplied a want which must have been felt by every teacher of Physiology."—*The Dublin Journal of Medical Science.*

BYFORD. GYNECOLOGY. A New Book. By HENRY T. BYFORD, M.D., Professor of Gynecology in the College of Physicians and Surgeons of Chicago, etc. 234 Illustrations, many of which are original. 12mo. Cloth, \$2.50

The general arrangement of the subject matter, the sections on diagnosis, treatment, and technic, will prove specially useful and interesting not only to the student for whom the book is intended, but to the general practitioner, who wishes to keep abreast with the latest teachings and methods of treatment without entering into elaborate discussions about the more complicated cases and difficult operations, the management of which he would never attempt.

TYSON. EXAMINATION OF URINE. Ninth Edition. A Practical Guide for Physicians and Students. By JAMES TYSON, M.D., Professor of Clinical Medicine University of Pennsylvania. 48 Illustrations and a Colored Plate. 12mo. Cloth, \$1.25.

"No physician needs to be told of the necessity of having this book at hand for constant reference. It easily holds the first place among the many manuals of its class."—*Medical Record, New York.*

The prices of all our books are absolutely net.

P. BLAKISTON, SON & CO., Publishers and Booksellers,

1012 WALNUT STREET, PHILADELPHIA.

WP 140 W456c 1896

47210930R



NLM 05242314 4

NATIONAL LIBRARY OF MEDICINE